

GRE AWA MODEL ESSAYS

Topics in the following list may appear in your actual test. You should become familiar with this list before you take the GRE-AWA test. Remember that when you take the test you will not have a choice of topics. You must write only on the topic that is assigned to you.

To sum up, a certain measure of distrust of so-called "facts" is the very stuff of which human knowledge and progress are fashioned, whether in the physical sciences, the social sciences, or the law. Therefore, with few exceptions I strongly agree that we should strive to look at facts through skeptical eyes.

The Pool of Argument Topics

Discuss how well reasoned you find this argument.

Argument 1

The following appeared in a memorandum written by the vice president of Nature's Way, a chain of stores selling health food and other health-related products.

"Previous experience has shown that our stores are most profitable in areas where residents are highly concerned with leading healthy lives. We should therefore build our next new store in Plainsville, which has many such residents. Plainsville merchants report that sales of running shoes and exercise clothing are at all-time highs. The local health club, which nearly closed five years ago due to lack of business, has more members than ever, and the weight training and aerobics classes are always full. We can even anticipate a new generation of customers: Plainsville's schoolchildren are required to participate in a 'fitness for life' program, which emphasizes the benefits of regular exercise at an early age."

In this memo the vice president of Nature's Way (NW), a chain of stores selling health food and health-related products, recommends opening a store in Plainsville. To support this recommendation the vice president cites the following facts about Plainsville: (1) sales of exercise shoes and clothing are at all-time highs; (2) the local health club is more popular than ever; and (3) the city's schoolchildren are required to participate in a fitness program. Close scrutiny of each of these facts, however, reveals that none of them lend credible support to the recommendation.

First, strong sales of exercise apparel do not necessarily indicate that Plainsville residents would be interested in NW's products, or that these residents are interested in exercising. Perhaps exercise apparel happens to be fashionable at the moment, or inexpensive compared to other types of clothing. For that matter, perhaps the stronger-than-usual sales are due to increasing sales to tourists. In short, without ruling out other possible reasons for the strong sales the vice president cannot convince me on the basis of them that Plainsville residents are exercising regularly, let alone that they would be interested in buying the sorts of food and other products that NW sells.

Secondly, even if exercise is more popular among Plainsville residents than ever before, the vice president assumes further that people who exercise regularly are also interested in buying health food and health-related products. Yet the memo contains no evidence to support this assumption. Lacking such evidence it is equally possible that aside from exercising Plainsville residents have little interest in leading a healthy lifestyle. In fact, perhaps as a result of regular exercise they believe they are sufficiently fit and healthy and do not need a

healthy diet.

Thirdly, the popularity of the local health club is little indication that NW will earn a profit from a store in Plainesville. Perhaps club members live in an area of Plainesville nowhere near feasible sites for a NW store. Or perhaps the club's primary appeal is as a singles meeting place, and that members actually have little interest in a healthy lifestyle. Besides, even if the club's members would patronize a NW store these members might be insufficient in number to ensure a profit for the store, especially considering that this health club is the only one in Plainesville.

Fourth, the fact that a certain fitness program is mandatory for Plainesville's schoolchildren accomplishes nothing toward bolstering the recommendation. Many years must pass before these children will be old enough to make buying decisions when it comes to food and health-related products. Their habits and interests might change radically over time. Besides, mandatory participation is no indication of genuine interest in health or fitness. Moreover, when these children grow older it is entirely possible that they will favor an unhealthy lifestyle--as a reaction to the healthful habits imposed upon them now.

Finally, even assuming that Plainesville residents are strongly interested in eating health foods and health-related products, the recommendation rests on two additional assumptions: (1) that this interest will continue in the foreseeable future, and (2) that Plainesville residents will prefer NW over other merchants that sell similar products. Until the vice president substantiates both assumptions I remain unconvinced that a NW store in Plainesville would be profitable.

In sum, the recommendation relies on certain doubtful assumptions that render it unconvincing as it stands. To bolster the recommendation the vice president must provide dear evidence--perhaps by way of a local survey or study--that Plainesville residents who buy and wear exercise apparel, and especially the health club's members, do in fact exercise regularly, and that these exercisers are likely to buy health foods and health related products at a NW store. To better assess the recommendation, I would need to know why Plainesville's health club is nonular, and why Plainesville does not contain more health clubs. I would also need to know what competition NW might face in Plainesville.

Argument 2

The following appeared in a letter sent by a committee of homeowners from the Deerhaven Acres to all homeowners in Deerhaven Acres.

"Seven years ago, homeowners in nearby Brookville community adopted a set of restrictions on how the community's yards should be landscaped and what colors the exteriors of homes should be painted. Since then, average property values have tripled in Brookville. In order to raise property values in Deerhaven Acres, we should adopt our own set of restrictions on landscaping and housepainting."

In this letter a committee of Deerhaven Acres homeowners recommends that in order to enhance Deerhaven property values homeowners should follow certain restrictions concerning their homes' exterior appearance. To support this recommendation the committee points out that in the seven years since Brookville adopted similar restrictions property values there have

risen. This argument rests on a series of unsubstantiated assumptions, and is therefore unpersuasive as it stands.

A threshold assumption upon which the recommendation relies is that Brookville homeowners implemented Brookville's restrictions in the first place. The letter fails to substantiate this crucial assumption. If these restrictions were not implemented, then any change in Brookville's property values cannot be attributed to them. Accordingly, the committee cannot draw any firm conclusion about what effect similar restrictions would have on Deerhaven property values.

Even assuming that Brookville homeowners implemented these restrictions, the committee relies on the additional assumption that this course of action was responsible for the increase in Brookville property values. However, it is entirely possible that one or more other factors were instead responsible for the increase, especially since a considerable period of time has passed since Brookville adopted its restrictions. Property values are a function of supply and demand. Perhaps the demand for housing in the area has increased due to an influx of major employers. Or, perhaps the supply of housing has decreased. Either scenario would provide an alternative explanation for the increase in property values.

Even assuming that Brookville's rising property values are attributable to the implementation of these restrictions, the committee fails to consider possible differences between Brookville and Deerhaven that might help to bring about a different result for Deerhaven. For instance, potential Deerhaven home-buyers might be less interested in a home's exterior appearance than Brookville home-buyers. For that matter, perhaps Deerhaven home-buyers would find consistent exterior appearance a distasteful feature in which case adopting these restrictions might actually tend to decrease Deerhaven property values. Without accounting for these and other possible dissimilarities, the committee cannot assume that what resulted in rising property values in Brookville would bring about the same result in Deerhaven.

In conclusion, to persuade me that Deerhaven should adopt the proposed restrictions the committee must supply clear evidence that the implementation of Brookville's restrictions, and not some other factor, was responsible for the rise in Brookville's property values. The committee must also provide evidence that other factors affecting home prices in the two areas are otherwise essentially the same.

Argument 3

The following appeared in a newspaper article about law firms in the city of Megalopolis.

"In Megalopolis, the number of law school graduates who went to work for large, corporate firms declined by 15% over the last three years, whereas an increasing number of graduates took jobs at small, general practice firms. Even though large firms usually offer much higher salaries, law school graduates are choosing to work for the smaller firms most likely because they experience greater job satisfaction at smaller firms. In a survey of first-year students at a leading law school, most agreed with the statement that earning a high salary was less important to them than job satisfaction. This finding suggests that the large, corporate firms of Megalopolis will need to offer graduates more benefits and incentives and reduce the number of hours they must work."

This article concludes that despite the relatively high salaries at Megalopolis' large law firms, these firms must begin offering more benefits and incentives to new law-school graduates, while requiring them to work fewer hours, in order to reverse a 3-year 15% decline in the number of graduates going to work for these firms. To justify this conclusion the article's author notes that during the last 3 years the number of new law-school graduates going to work for small firms has risen. The author also cites a survey at one leading law school in which most first-year students indicated that job satisfaction was more important than salary. I find this argument logically unconvincing in several respects.

First of all, the 15% decline that the author cites is not necessarily due to the vocational preferences of new law-school graduates. It is entirely possible that the number of new graduates preferring to work for large firms has not declined, but that during the last three years Megalopolis' large firms have had fewer and fewer job openings for these graduates. Since the article fails to account for this alternative explanation for the 15% decline, the article's author cannot make any sound recommendations to law firms based on that decline.

As for the survey that the article cites, the vocational goals of first-year law students do not necessarily reflect those of graduating students; after all, a law student's vocational goals can change over a three-year period. Moreover, the goals of students at one law school do not necessarily reflect those of the overall pool of graduates that might seek employment with Megalopolis law firms. In fact, given that the school whose students participated in the survey was a "leading" school, it is entirely possible that the vast majority of the school's graduates may choose among offers from many large firms in many cities. If so, this fact would further undermine the survey's relevance in prescribing any course of action for Megalopolis' law firms.

Finally, the author falsely equates the proposed tangible incentives with job satisfaction, which is an intangible reward based on the nature of one's work. Moreover, enhanced job benefits can be tantamount to an enhanced salary, and shorter working hours amount to a higher hourly wage. Thus if new law-school graduates seeking jobs in Megalopolis are less interested in monetary rewards than in job satisfaction, then the proposed incentives are not likely to entice these graduates.

In sum, the argument is logically flawed and therefore unconvincing as it stands. To strengthen it the author must either modify the proposal to provide incentives for those seeking job satisfaction over monetary rewards, or provide better evidence that new law school graduates seeking jobs in Megalopolis would forego the proposed incentives.

Argument 4

"Of the two leading real estate firms in our town---Adams Realty and Fitch Realty---Adams is clearly superior. Adams has 40 real estate agents. In contrast, Fitch has 25, many of whom work only part-time. Moreover, Adams' revenue last year was twice as high as that of Fitch, and included home sales that averaged \$168,000, compared to Fitch's \$144,000. Homes listed with Adams sell faster as well: ten years ago, I listed my home with Fitch and it took more than four months to sell; last year, when I sold another home, I listed it with Adams, and it took only one month. Thus, if you want to sell your home quickly and at a good price, you

should use Adams."

The author of this argument claims that Adams Realty is superior to Fitch Realty. To support this claim the author cites certain statistics about the number and working hours of the firms' agents, and the number and sales prices of homes sold by the two firms. The author also cites anecdotal evidence involving her own experience with Fitch and Adams. Close scrutiny of this evidence reveals that it lends little credible support for the author's assertion.

The author bases her claim partly on the fact that Adams has more agents than Fitch, and that many of Fitch's agents work only part-time. However, the author provides no evidence that the quality of a real-estate firm is directly proportional to the number of its agents or the number of hours per week that its agents work. Lacking such evidence, it is equally possible that a smaller firm is more effective than a larger one, and that a part-time agent is more effective than a full-time agent. Besides, the author does not provide any information about how many Adams agents work part-time.

To further support her claim the author cites the fact that Adams sold more properties last year than Fitch. However, the author overlooks the possibility that last year's sales volume amounted to an aberration, and that in most other years Adams has actually sold fewer properties than Fitch. Moreover, the disparity in sales volume can readily be explained by factors other than the comparative quality of the two firms. Perhaps Adams serves a denser geographic area, or an area where turnover in home-ownership is higher for reasons unrelated to Adams' effectiveness. Or perhaps sales volume is higher at Adams simply because it employs more agents, and each Adams agent actually sells fewer homes on average than each Fitch agent does. Without ruling out such alternative explanations for the disparity in sales volume, the author cannot defend the conclusion that based on this evidence that Adams is superior to Fitch.

In further support of her claim the author points out that the average sales price of a home sold by Adams is greater than the average price of a home sold by Fitch. However, this evidence shows only that the homes that Adams sells are more valuable on average than the ones that Fitch sells, not that Adams is more effective in selling homes than Fitch. Moreover, it is possible that a few relatively high-priced or low-priced properties skewed these averages, rendering any conclusions about the comparative quality of the two firms based on these averages unfair.

For additional support the author points out that it took Fitch Realty considerable longer to sell one of the author's homes than it took Adams Realty to sell another one of her homes ten years earlier. However, this disparity is explainable by other plausible factors, such as changing economic conditions during that ten-year period, or a difference in the desirability of the two properties. Without establishing that all other factors affecting the speed of a sale were essentially the same for the two homes, the author cannot rely on this limited anecdotal evidence to support her claim.

In conclusion, the author's evidence lends little credible support to her claim. To persuade me that Adams is better than Fitch, the author would need to provide clear evidence that individual Adams agents are more effective in selling homes than individual Fitch agents, and that the disparity in home sales and sales price is attributable to that difference. Finally, to better evaluate the author's claim we would need more information comparing the percentage

of agents working part-time at Fitch versus Adams. We would also need more information about the comparative attractiveness of the author's two homes, and the extent to which the residential real-estate market changed during the decade between the sale of these two homes.

Argument 5

The following was written as a part of an application for a small business loan by a group of developers in the city of Monroe.

"A jazz music club in Monroe would be a tremendously profitable enterprise. Currently, the nearest jazz club is 65 miles away; thus, our proposed club, the C Note, would have the local market all to itself. Plus, jazz is extremely popular in Monroe: over 100,000 people attended Monroe's jazz festival last summer, several well-known jazz musicians live in Monroe, and the highest-rated radio program in Monroe is 'Jazz Nightly,' which airs every weeknight. Finally, a nationwide study indicates that the typical jazz fan spends close to \$1,000 per year on jazz entertainment. It is clear that the C Note cannot help but make money."

This loan applicant claims that a jazz club in Monroe would be a profitable venture. To support this claim the applicant points out that Monroe has no other jazz clubs. He also cites various other evidence that jazz is popular among Monroe residents. Careful examination of this supporting evidence, however, reveals that it lends little credible support to the applicant's claim.

First of all, if the demand for a live jazz club in Monroe were as great as the applicant claims, it seems that Monroe would already have one or more such clubs. The fact that the closest jazz club is 65 miles away suggests a lack of interest among Monroe residents in a local jazz club. Since the applicant has not adequately responded to this concern, his claim that the proposed club would be profitable is untenable.

The popularity of Monroe's annual jazz festival and of its nightly jazz radio show might appear to lend support to the applicant's claim. However, it is entirely possible that the vast majority of festival attendees are out-of-town visitors. Moreover, the author provides no evidence that radio listeners would be interested in going out to hear live jazz. For that matter, the radio program might actually pose competition for the C-Note club, especially considering that the program airs during the evening.

Nor does the mere fact that several well-known jazz musicians live in Monroe lend significant support to the applicant's claim. It is entirely possible that these musicians perform elsewhere, perhaps at the club located 65 miles away. This would go a long way toward explaining why Monroe does not currently have a jazz club, and it would weaken the applicant's assertion that the C-Note would be profitable.

Finally, the nationwide study showing that the average jazz fan spends \$1,000 each year on jazz entertainment would lend support to the applicant's claim only if Monroe residents typify jazz fans nationwide. However, the applicant provides no credible evidence that this is the case.

In conclusion, the loan applicant's argument is not persuasive. To bolster it he must provide clearer evidence that Monroe residents would patronize the C-Note on a regular basis. Such

evidence might include the following: statistics showing that a significant number of Monroe residents attend the jazz festival each year; a survey showing that fans of Monroe's jazz radio program would go out to hear live jazz if they had the chance; and assurances from well-known local jazz musicians that they would play at the C-Note if given the opportunity.

Argument 6

The following appeared in a letter to the editor of the Clearview newspaper.

"In the next mayoral election, residents of Clearview should vote for Ann Green, who is a member of the Good Earth Coalition, rather than for Frank Braun, a member of the Clearview town council, because the current members are not protecting our environment. For example, during the past year the number of factories in Clearview has doubled, air pollution levels have increased, and the local hospital has treated 25 percent more patients with respiratory illnesses. If we elect Ann Green, the environmental problems in Clearview will certainly be solved."

This editorial recommends that Clearview residents vote to replace city-council member Frank Braun with Ann Green, a member of the Good Earth Coalition. To support this recommendation the editorial cites a significant increase during the last year in the number of Clearview factories and in the number of Clearview hospital patients treated for respiratory illnesses. On the basis of this evidence the author infers that the current council members are not protecting the city's environment and that electing Green will solve the city's environmental problems. This argument is logically flawed in several critical respects.

To begin with, the argument unfairly assumes that last year's increase in the number of factories was due to the city council's decisions--rather than to some other phenomenon--and that this increase poses environmental problems for Clearview. The editorial provides no evidence to substantiate these assumptions. Lacking such evidence it is entirely possible that the council actually opposed the increase but lacked adequate authority to prevent it, or that the new factories do not in fact harm Clearview's environment.

The argument also assumes unfairly that last year's increase in the number of patients reporting respiratory problems indicates worsening environmental problems in Clear view. Perhaps the actual incidence of such health problems has not increased, and the reported increase is due to increasing awareness among Clearview residents of respiratory problems. Even if the incidence of respiratory problems has in fact increased, the increase might due to an influx of people with pre-existing such problems, or to more effective cigarette marketing. Since the editorial fails to rule out these and other possible explanations for the increase, I cannot accept any conclusions about Clearview's environment let alone about who voters should elect to city council based on last year's hospital records.

Even if the two cited increases do indicate a worsening of Clearview's environment due to the city council's decisions, the argument rests on the further assumption that Braun was a factor in those decisions. But, since the editorial provides no evidence to substantiate this assumption it is equally possible that Braun actually opposed the decisions that were responsible for these increases. Thus without better evidence that Braun contributed to key decisions adversely effecting Clearview's environment the editorial remains unconvincing.

Even assuming that Braun was at least partially responsible for the two increases, and that

those increases indicate a worsening environment, the editorial provides no clear evidence that Green would be effective in reversing that trend—let alone more effective than Braun. The mere fact that Green is a member of the Good Earth Coalition hardly suffices to prove her willingness and ability to help solve Clearview's environmental problems, at least not without more information about that coalition and Green's involvement in it.

Finally, even if Green would in fact be more effective than Braun in solving Clearview's environmental problems, the author provides no firm evidence that electing Green is necessary to solve those problems, or that electing Green would suffice. Perhaps another candidate, or another course of action, would be more effective. Even if Green does everything in her power as city-council member to solve these problems, perhaps additional measures—such as replacing other council members, state legislators, or even the state's governor—would also be required in order to achieve Clearview's environmental objectives.

In sum, the editorial's author cannot justify his or her voting recommendation on the basis of the scant evidence provided in the editorial. To bolster the recommendation the author must provide better evidence that (1) Clearview has environmental problems to begin with, (2) Green would be more effective than either Braun or any other candidate in solving those problems, and (3) electing Green would suffice to solve those problems. To better assess the argument I would need to know the scope of the city council's authority respecting environmental decisions. I would also need to know Braun's voting record on environmental issues, Green's experience and position on those issues, and the voters' other choices—besides Green and Braun.

Argument 7

The following appeared in a memorandum issued by the strategic planning department at Omni Inc.

"Mesa Foods, a manufacturer of snack foods that currently markets its products within a relatively small region of the country, has strong growth potential. Mesa enjoyed a 20 percent increase in profits last year, and its best-selling product, Diabolique Salsa, has had increased sales over each of the past three years. Since Omni Inc. is interested in reaching 14-to-25 year olds, the age group that consumes the most snack food, we should buy Mesa Foods, and concentrate in particular on marketing Diabolique Salsa throughout the country."

This Omni, Inc. memorandum recommends that Omni buy snack-food manufacturer Mesa Foods and aggressively promote its brand of salsa nationwide. To support this recommendation the memo relies on the exceptional profitability of Mesa's salsa during the last three years, along with the fact that Mesa's overall profits were up last year. However, the recommendation relies on a series of unsubstantiated assumptions, which render it unconvincing as it stands.

First of all, the memo indicates that Omni is interested in selling to 14-to-25 year-olds. Accordingly, the argument rests on the assumption that Mesa's snack foods appeal to this age group. Yet, we are not informed what types of snack foods Mesa manufactures, aside from its salsa. It is entirely possible that Mesa's foods, including its salsa, appeal primarily to other age groups. If this is the case, the recommended acquisition would not serve Omni's goal.

Secondly, the argument rests on the assumption that in the region where Mesa's products are sold the preferences of consumers between the ages of 14 and 25 typify nationwide preferences among this age group. If this is not the case, then it is entirely possible that Omni would not sell enough Mesa snack foods, including its salsa, to earn a profit from its Mesa operation. Thus, without more marketing information about the snack-food tastes of 14-to-25 year-olds nationwide it is difficult to assess the merit of the memo's recommendation.

Even if the memo's author can substantiate the foregoing assumptions, the author overlooks the possibility that last year's 20% increase in Mesa's profits was an aberration, and that in most other years Mesa has not been profitable. Also, the 20% increase might have been due entirely to sales of Mesa's salsa, and aside from the profit from salsa sales Mesa's profitability is actually declining. If either is the case, and if Mesa's salsa does not turn out to be popular among 14-to-25 year-olds across the nation, then Omni is unlikely to profit from the recommended course of action.

In conclusion, the recommendation is not well supported. To convince me that the Mesa Foods acquisition would be profitable Omni would need to provide clear statistical evidence that Mesa's snack foods, and its salsa in particular, would appeal to 14-to-25 year-olds nationwide. To better evaluate the recommendation, I would need more information about Mesa's profitability over a longer time period, and about the extent to which Mesa's salsa accounts for any such profitability.

Argument 8

The following appeared in a memorandum from a dean at Omega University.

"Fifteen years ago, Omega University implemented a new procedure that encouraged students to evaluate the teaching effectiveness of all their professors. Since that time, Omega professors have begun to assign higher grades in their classes, and overall student grade averages at Omega have risen by thirty percent. Potential employers apparently believe the grades at Omega are inflated; this would explain why Omega graduates have not been as successful at getting jobs as have graduates from nearby Alpha University. To enable its graduates to secure better jobs, Omega University should now terminate student evaluation of professors."

In this memo Omega University's dean points out that Omega graduates are less successful in getting jobs than Alpha University graduates, despite the fact that during the past 15 years the overall grade average of Omega students has risen by 30%. The dean also points out that during the past 15 years Omega has encouraged its students, by way of a particular procedure, to evaluate the effectiveness of their professors. The dean reasons that this procedure explains the grade-average increase, which in turn has created a perception among employers that Omega graduates are less qualified for jobs. On the basis of this line of reasoning the dean concludes that to enable Omega graduates to find better jobs Omega must terminate its professor-evaluation procedure. This argument contains several logical flaws, which render it unconvincing.

A threshold problem with the argument involves the voluntary nature of the evaluation procedure. The dean provides no evidence about the number or percentage of Omega

students who participate in the procedure. Lacking such evidence it is entirely possible that those numbers are insignificant, in which case terminating the procedure is unlikely to have any effect on the grade average of Omega students or their success in getting jobs after graduation.

The argument also assumes unfairly that the grade-average increase is the result of the evaluation procedure--rather than some other phenomenon. The dean ignores a host of other possible explanations for the increase--such as a trend at Omega toward higher admission standards, or higher quality instruction or facilities. Without ruling out all other possible explanations for the grade-average increase, the dean cannot convince me that by terminating the evaluation procedure Omega would curb its perceived grade inflation let alone help its graduates get jobs.

Even if the evaluation procedure has resulted in grade inflation at Omega, the dean's claim that grade inflation explains why Omega graduates are less successful than Alpha graduates in getting jobs is unjustified. The dean overlooks a myriad of other possible reasons for Omega's comparatively poor job-placement record. Perhaps Omega's career services are inadequate; or perhaps Omega's curriculum does not prepare students for the job market as effectively as Alpha's. In short, without accounting for other factors that might contribute to Omega graduates' comparative lack of success in getting jobs, the dean cannot justify the claim that if Omega curbs its grade inflation employers will be more likely to hire Omega graduates.

Finally, even if the dean can substantiate all of the foregoing assumptions, the dean's assertion that Omega must terminate its evaluation procedure to enable its graduates to find better jobs is still unwarranted, in two respects. First, the dean ignores other possible ways by which Omega can increase its job-placement record--for example, by improving its public relations or career-counseling services. Second, the dean unfairly equates "more" jobs with "better" jobs. In other words, even if more Omega graduates are able to find jobs as a result of the dean's recommended course of action, the kinds of jobs Omega graduates find would not necessarily be better ones.

In sum, the dean's argument is unpersuasive as it stands. To strengthen it the dean must provide better evidence that the increase in grade average is attributable to Omega's professor-evaluation procedure, and that the end result is a perception on the part of employers that Omega graduates are less qualified for jobs than Alpha graduates. To better assess the argument I would need to analyze 15-year trends in (1) the percentage of Omega students participating in the evaluation procedure, (2) Omega's admission standards and quality of education, and (3) Omega's emphasis on job training and career preparation. I would also need to know what other means are available to Omega for enabling its graduates to find better jobs.

Argument 9

The following appeared in a letter to the editor of a Batavia newspaper.

"The department of agriculture in Batavia reports that the number of dairy farms throughout the country is now 25 percent greater than it was 10 years ago. During this same time period, however, the price of milk at the local Excello Food Market has increased from \$1.50 to over

\$3.00 per gallon. To prevent farmers from continuing to receive excessive profits on an apparently increased supply of milk, the Batavia government should begin to regulate retail milk prices. Such regulation is necessary to ensure both lower prices and an adequate supply of milk for consumers."

This editorial recommends that Batavia's government regulate milk prices because profits from milk sales are excessive given the apparently adequate supply. The editorial also claims that price regulation would help ensure an adequate supply of milk. To support these assertions the author cites the fact that over the past ten years the number of dairy farms in Batavia has increased by 25% while at ExceUo Food Market milk prices have increased by 100%. However, the argument relies on a series of unsubstantiated assumptions, which render it unconvincing as it stands.

First of all, the author assumes that ExceUo's milk prices reflect those throughout Batavia. However, the author provides no evidence that this is the case. To the extent that ExceUo's milk prices currently exceed nationwide averages the author's argument for government regulation of milk prices would be undermined.

In the second place, even if ExceUo's milk prices reflect those in Batavia generally, in claiming that milk prices are particularly "excessive" the author assumes that milk-sale profits exceed profits from the sale of other goods in Batavia to a significant degree. But the author provides no evidence to substantiate this assumption. Perhaps other prices have risen commensurably, or perhaps even more on a percentage basis, during the same time period. Moreover, perhaps profit margins from the sale of other goods are even greater than profits from milk sales. In either event the author could not justifiably rely on the mere fact that milk prices have increased by 100% to support the claim that milk sale profits are excessive.

In the third place, the author assumes that an increase in milk prices results in increased profits. However, this is not necessarily the case. It is entirely possible that the costs associated with producing and delivering milk have increased as well over the last ten years. Thus the strength of the author's claim of excessive milk-sale profits depends on a cost-benefit analysis that the author does not provide.

In the fourth place, based on the fact that the number of dairy farms has increased the author infers that the supply of milk has also increased. However, this is not necessarily the case. It is possible that dairy farm production has shifted away from milk to other dairy products, and that the supply of milk has actually declined over this time period. To the extent that this is the case, then the author's supply-and-demand argument that milk prices are excessive is unconvincing.

Finally, in asserting that price regulation would help ensure an adequate supply of milk the author overlooks the possibility that milk producers would respond to the regulation by producing less milk, depending on the extent to which demand increases as a result of lower milk prices. If regulation has the effect of lowering profits, then common sense tells me that milk producers might be less inclined to produce milk. Without ruling out this possible scenario, the author cannot convince me that the recommendation would help ensure an adequate supply of milk.

In conclusion, the recommendation for regulation of milk prices is not well supported. To convince me that the proposed regulation is needed to ensure a reasonably priced milk supply,

the author must provide clear statistical evidence that Excello's milk prices reflect nationwide milk prices and that profits from milk sales are in fact excessive. To better evaluate the recommendation, I would need more information about how the proposed regulation would effect both the supply of milk and the demand for milk in Batavia.

Argument 10

The following appeared in a memo from the mayor of the town of West Egg.

"Two years ago, our consultants predicted that West Egg's landfill, which is used for garbage disposal, would be completely filled within five years. During the past two years, however, town residents have been recycling twice as much aluminum and paper as they did in previous years. Next month the amount of material recycled should further increase, since charges for garbage pickup will double. Furthermore, over ninety percent of the respondents to a recent survey said that they would do more recycling in the future. Because of our residents' strong commitment to recycling, the available space in our landfill should last for considerably longer than predicted."

In this memo West Egg's mayor reasons that West Egg's residents are now strongly committed to recycling, and projects that the city's landfill will not be filled to capacity until considerably later than anticipated two years ago. To support this projection the mayor cites (1) a twofold increase in aluminum and paper recycling by West Egg residents over the last two years, (2) an impending twofold increase in charges for trash pickup, and (3) a recent survey in which 90% of respondents indicated that they intend to do more recycling in the future. For several reasons, I am not convinced that the mayor's projection is accurate.

To begin with, in all likelihood aluminum and paper account for only some of the materials West Egg's residents can recycle. Perhaps recycling of other recyclable materials--such as plastic and glass--has declined to the point that the total amount of recycled materials has also declined. If so, then the mayor could hardly justify the claim that West Egg's residents are becoming more committed to recycling.

Another problem with the argument is that an increase in the amount of recycled materials does not necessarily indicate a decrease in the total amount of trash deposited in the city's landfill. Admittedly, if West Egg residents previously disposed of certain recyclable materials that they now recycle instead, then this shift from disposal to recycling would serve to reduce the amount of trash going to the landfill. However, the mayor provides no evidence of such a shift.

Moreover, the argument overlooks the strong possibility that the recycling habits of West Egg residents are not the only factor affecting how quickly the landfill will reach capacity. Other such factors might include population and demographic shifts, the habits of people from outside West Egg whose trash also feeds the landfill, and the availability of alternative disposal methods such as burning. Thus regardless of the recycling efforts of West Egg residents the landfill might nevertheless reach full capacity by the date originally forecast.

Yet another problem with the argument involves the mayor's implicit claim that increased charges for trash pickup will serve to slow the rate at which the landfill is reaching capacity. This claim relies on the unlikely assumption that West Egg residents have the option of

recycling--or disposing in some other way--much of what they would otherwise send to the landfill. However, it is likely these residents have no practical choice but to send some refuse to the landfill. The greater the amount, the less likely higher trash charges would have any effect on how quickly the landfill reaches capacity.

Finally, the mayor provides no evidence that the survey's respondents are representative of the overall group of people whose trash goes to the city's landfill. Lacking such evidence, it is entirely possible that people inclined to recycle were more willing to respond to the survey than other people were. In short, without better evidence that the survey is statistically reliable the mayor cannot rely on it to draw any firm conclusions about the overall recycling commitment of West Egg residents--let alone about how quickly the landfill will reach capacity.

In sum, the mayor's projection is simply not credible, at least based on the memo. Rather than relying solely on questionable recycling statistics, the mayor should provide direct evidence that the amount of trash going to the landfill is declining and that this trend will not reverse itself anytime soon. To better assess the accuracy of the mayor's projection it would be useful to know who besides West Egg residents contributes trash to the landfill, and whether the amount of trash those people contribute is declining or is likely to decline in the near future.

Argument 11

The following appeared in a memo from a vice president of Alta Manufacturing.

"During the past year, Alta Manufacturing had thirty percent more on-the-job accidents than nearby Panoply Industries, where the work shifts are one hour shorter than ours. Experts believe that a significant contributing factor in many on-the-job accidents is fatigue and sleep deprivation among workers. Therefore, to reduce the number of on-the-job accidents at Alta and thereby increase productivity, we should shorten each of our three work shifts by one hour so that our employees will get adequate amounts of sleep."

This editorial recommends that Alta Manufacturing reduce its work shifts by one hour each in order to reduce its on-the-job accident rate and thereby increase Alta's productivity. To support this recommendation the author points out that last year the number of accidents at Alta was 30% greater than at Panoply Industries, where work shifts were one hour shorter. The author also cites certain experts who believe that many on-the-job accidents are caused by fatigue and sleep deprivation. I find this the argument unconvincing for several reasons.

First and foremost, the author provides absolutely no evidence that overall worker productivity is attributable in part to the number of on-the-job accidents. Although common sense informs me that such a relationship exists, the author must provide some evidence of this cause-and-effect relationship before I can accept the author's final conclusion that the proposed course of action would in fact increase Alta's productivity.

Secondly, the author assumes that some accidents at Alta are caused by fatigue or sleep deprivation. However, the author overlooks other possible causes, such as inadequate equipment maintenance or worker training, or the inherent hazards of Alta's manufacturing processes. By the same token, Panoply's comparatively low accident rate might be attributable not to the length of its work shifts but rather to other factors, such as superior equipment maintenance or worker training. In other words, without ruling out alternative causes of

on-the-job accidents at both companies, the author cannot justifiably conclude that merely by emulating Panoply's work-shift policy Alta would reduce the number of such accidents.

Thirdly, even assuming that Alta's workers are fatigued or sleep-deprived, and that this is the cause of some of Alta's on-the-job accidents, in order to accept the author's solution to this problem we must assume that Alta's workers would use the additional hour of free time to sleep or rest. However, the author provides no evidence that they would use the time in this manner. It is entirely possible that Alta's workers would use that extra hour to engage in some other fatiguing activity. Without ruling out this possibility the author cannot convincingly conclude that reducing Alta's work shifts by one hour would reduce Alta's accident rate.

Finally, a series of problems with the argument arise from the scant statistical information on which it relies. In comparing the number of accidents at Alta and Panoply, the author fails to consider that the per-worker accident rate might reveal that Alta is actually safer than Panoply, depending on the total number of workers at each company. Second, perhaps accident rates at the two companies last year were aberrations, and during other years Alta's accident rate was no greater, or even lower, than Panoply's rate. Or perhaps Panoply is not representative of industrial companies generally, and that other companies with shorter work shifts have even higher accident rates. In short, since the argument relies on very limited statistical information I cannot take the author's recommendation seriously.

In conclusion, the recommendation for emulating Panoply's work-shift policy is not well supported. To convince me that shorter work shifts would reduce Alta's on-the-job accident rate, the author must provide clear evidence that work-shift length is responsible for some of Alta's accidents. The author must also supply evidence to support her final conclusion that a lower accident rate would in fact increase overall worker productivity.

Argument 12

The following appeared in a memo from the owner of Green Thumb Gardening Center, a small business serving a suburban town.

"There is evidence that consumers are becoming more and more interested in growing their own -vegetables. A national survey conducted last month indicated that many consumers were dissatisfied with the quality of fresh vegetables available in supermarkets. And locally, the gardening magazine Great Gardens has sold out at the Village News stand three months in a row. Thus, we at Green Thumb Gardening Center can increase our profits by greatly expanding the variety of vegetable seeds we stock for gardeners this coming spring."

In this memo the owner of Green Thumb Gardening Center (GT) concludes that GT could increase its profits by expanding its stock of vegetable seeds. The owner cites a national survey showing growing dissatisfaction with supermarket vegetables, and points out that a certain gardening magazine has sold out at one local newsstand three months in a row. I find the owner's argument weak, for three reasons.

First, by relying on the national survey to support its conclusion the argument depends on the assumption that the level of satisfaction locally with store-bought groceries reflects national levels. Yet the owner provides no evidence to support this assumption. It is possible that residents of this town are quite satisfied with these vegetables. Without eliminating this

possibility, the owner cannot rely on the national survey to conclude that this town's residents would be interested in buying vegetable seeds from GT.

Secondly, by relying on the survey the argument assumes that consumers who are dissatisfied with store-bought groceries are likely to grow their own vegetables instead. However, the owner fails to provide any evidence to support this assumption. Perhaps consumers are continuing to buy vegetables from grocery stores despite their dissatisfaction. Or perhaps this dissatisfaction is leading consumers to buy their vegetables from special produce markets and vegetable stands instead of supermarkets. Since the owner has failed to consider and rule out these possibilities, the owner's assertion that this town's dissatisfied consumers would be eager to buy vegetable seeds from GT to grow their own vegetables cannot be taken seriously.

Thirdly, the mere fact that a certain gardening magazine has recently sold out at one newsstand in this town is scant evidence that the town's residents would be eager to buy vegetable seeds from GT. Perhaps three months ago this newsstand decreased the number of copies it stocks; or perhaps the magazine does not even concern itself with vegetable gardening; or perhaps the only reason for this apparent increase in sales is that other newsstands in town have stopped stocking the magazine. Given these possible scenarios, the fact that one newsstand has sold every copy of the last three monthly issues proves nothing about local trends in vegetable gardening.

In conclusion, the owner's argument is unpersuasive. To strengthen it the owner must provide more convincing evidence that consumers in this town are actually becoming less satisfied with supermarket vegetables, and that as a result they are buying fewer such vegetables. To better evaluate the argument we would need more information about alternative sources of vegetables for local consumers--for example, the number and quality of produce stands. We would also need to know why the newsstand's copies of the gardening magazine sold out.

Argument 13

The following appeared in a newsletter offering advice to investors.

"Over 80 percent of the respondents to a recent survey indicated a desire to reduce their intake of foods containing fats and cholesterol, and today low-fat products abound in many food stores. Since many of the food products currently marketed by Old Dairy Industries are high in fat and cholesterol, the company's sales are likely to diminish greatly and their profits will no doubt decrease. We therefore advise Old Dairy stockholders to sell their shares and other investors not to purchase stock in this company."

This excerpt from an investment newsletter cites a recent study in which 80% of respondents indicated a desire to reduce their consumption of high-fat and high-cholesterol foods, then points out that food stores are well-stocked with low-fat food products. Based on this evidence the newsletter predicts a significant decline in sales and profits for Old Dairy (OD), a producer of dairy products high in fat and cholesterol, and advises investors not to own OD stock. I find this advice specious, on several grounds.

First, the excerpt fails to assure me that the survey results accurately reflect the desires of

most consumers, or that the results accurately predict consumer behavior. Without evidence that the respondents' desires are representative of those of the overall population where OD products are sold, it is hasty to draw any conclusions about future food buying habits from the survey. Moreover, common sense informs me that consumers do not necessarily make food-purchase decisions in strict accordance with their expressed desires. Thus as it stands the statistic that the newsletter cites amounts to scant evidence that OD sales and profits will decline in the future.

Secondly, the fact that low-fat foods are in abundant supply in food stores does not necessarily indicate an increasing demand for low-fat dairy products or a diminishing demand for high-fat dairy products. Absent evidence to the contrary, it is quite possible that consumers are buying other types of low-fat foods but are still demanding high fat in their dairy products. For that matter, it is entirely possible that food stores are well-stocked with low-fat foods because actual demand has not met the demand anticipated by the stores.

Thirdly, even assuming an indisputable consumer trend toward purchasing more low-fat dairy products and fewer high-fat dairy products, the newsletter concludes too hastily that OD profits will decline as a result. OD can always raise the price of its dairy products to offset declining sales, and given a sufficient demand OD might still turn a profit, despite the general consumer trend. Besides, profit is a function of not just revenue but also expenses. Perhaps OD expenses will decline by a greater amount than its revenue; if so, then OD profits will increase despite falling revenues.

In sum, without additional information prudent investors should refrain from following the newsletter's advice. To better assess the soundness of this advice it would be helpful to know the following: (1) the demographic profile of the survey's respondents; (2) the extent to which consumer desires regarding food intake accord with their subsequent behavior; (3) the extent of OD loyalty among its regular retail customers who might continue to prefer OD products over low-fat products even at higher prices; and (4) the extent to which OD might be able to reduce expenses to offset any revenue loss resulting from diminishing sales of OD products.

Argument 14

The following appeared in a letter to the editor of a local newspaper from a citizen of the state of Impecunia.

"Two years ago our neighboring state, Lucria, began a state lottery to supplement tax revenues for education and public health. Today, Lucria spends more per pupil than we do, and Lucria's public health program treats far more people than our state's program does. If we were to establish a state lottery like the one in Lucria, the profits could be used to improve our educational system and public health program. The new lottery would doubtless be successful, because a survey conducted in our capital city concludes that citizens of Impecunia already spend an average of \$50 per person per year on gambling."

In this editorial the author concludes that by establishing a lottery the state of Impecunia could use the profits from it to improve the state's education and public health programs. To support this conclusion the author points out that the neighboring state of Lucria established a lottery two years ago, and that today Lucria spends more per pupil and treats more people

through its health programs than Impecunia does. The editorial also cites a study showing that the average Impecunia resident now spends \$50 per year on gambling. In several respects, however, the evidence lends little credible support for the argument.

First of all, the fact that Lucria now spends more than Impecunia per pupil, in itself, lends no support to the argument. Perhaps Lucria has always placed a high priority on education; or perhaps Lucria has always had more funds than Impecunia to spend on its programs, including education. Lacking dearer evidence that Lucria's lottery successfully raised revenues that were then used to increase the amount spent per pupil, the author cannot expect us to take seriously the claim that by establishing a similar lottery Impecunia would improve its education programs.

Similarly, the fact that Lucria's health programs treat more people than Impecunia's programs lends no support to the argument. Perhaps Lucria's population is greater than Impecunia's; or perhaps its residents are older, on average, than Impecunia's residents, and therefore require a greater measure of health care. Without considering and ruling out these and other possible explanations for the distinction cited, the author cannot justifiably conclude that Lucria's lottery was responsible for improved health care in that state or that a similar lottery in Impecunia would carry a similar result.

Moreover, the argument unfairly assumes that the lottery in Lucria has been profitable. The author provides no evidence that this is the case. It is entirely possible that the money used for education and health care in Lucria comes from sources other than the lottery. Without accounting for this possibility, the author cannot justify the conclusion that a lottery in Impecunia would be successful.

Finally, the fact that Impecunia's residents spend \$50 per capita on gambling each year lends little support to the argument. Admittedly, this statistic amounts to some evidence of interest among Impecunia's residents in gambling, and therefore potential interest in a lottery. However, this evidence in itself does not suffice to prove that the lottery will in fact be popular. Perhaps Impecunia residents have no more discretionary income to participate in a lottery after spending \$50 on other forms of gambling. Or perhaps Impecunia residents typically travel elsewhere to gamble as part of their vacations, and that they would not otherwise be interested in gambling. In short, without more convincing evidence of both an ability and a willingness on the part of Impecunia's residents to participate in a lottery the author cannot convince me that the lottery will be profitable.

In conclusion, the editorial has not convinced me that a lottery would be profitable and would serve to improve Impecunia's education and health programs. To better evaluate the argument I would need more information comparing Lucria's level of health care and education expenditures before and after the lottery was established. To strengthen the argument, the author must provide dear evidence that Lucria's lottery was profitable and that these profits contributed to improved education and health care in Lucria. The author must also provide clearer evidence of the willingness and ability of Impecunia residents to participate broadly in a lottery.

Argument 15

The following appeared in a letter to the editor of the Walnut Grove town newspaper.

"Walnut Grove's town council has advocated switching from EZ Disposal (which has had the contract for trash collection services in Walnut Grove for the past ten years) to ABC Waste, because EZ recently raised its monthly fee from \$2,000 to \$2,500 a month, whereas ABC's fee is still \$2,000. But the town council is mistaken; we should continue using EZ. EZ collects trash twice a week, while ABC collects only once. Moreover, EZ---which, like ABC, currently has a fleet of 20 trucks---has ordered additional trucks. Finally, EZ provides exceptional service: 80 percent of respondents to last year's town survey agreed that they were 'satisfied' with EZ's performance."

This letter recommends that Walnut Grove continue to contract with EZ Disposal, which has provided trash-collection services to Walnut Grove for ten years, rather than switching to ABC Waste. To justify this recommendation the letter's author notes that even though ABC's weekly fee is \$500 less than EZ's, EZ collects twice per week whereas ABC would collect only once per week. The author also points out that, although both companies have the same number of trucks, EZ has ordered additional trucks. Finally, the author cites a recent survey in which 80% of respondents indicated that they were satisfied with EZ's service. I find this recommendation specious on several grounds.

First of all, the fact that EZ collects trash twice as often as ABC is significant only if the town would benefit from an additional collection each week. Yet the author provides no evidence that this is the case. For all we know, one collection per week suffices to dispose all of the town's trash. If so, then on the basis of frequency of collection it would make no sense to favor EZ's costlier service over ABC's less expensive one.

Secondly, the fact that EZ has ordered more trucks proves little in itself about which service would be the better choice for Walnut Grove. Perhaps EZ does not plan to use its new trucks for collecting Walnut Grove's trash. For that matter, perhaps EZ does not use its entire current fleet for this purpose, whereas ABC would. Besides, the author does not indicate when EZ will receive its new trucks; the later the delivery date, the less significant this factor should be in Walnut Grove's decision.

Thirdly, the mere fact that most respondents to a recent survey considered EZ's service satisfactory provides little support to the author's recommendation. The author fails to provide assurances that these respondents are representative of the overall population of people whose trash EZ collects. Moreover, even if that population is generally satisfied it is entirely possible that they would be even more satisfied with ABC's services.

In sum, the recommendation is not well supported. To bolster it the letter's author must provide specific evidence that Walnut Grove would benefit from an additional trash collection each week, and that the use of additional trucks would improve service to Walnut Grove. To better assess the strength of the recommendation I would need more information about the demographic profile of the survey's respondents. It would also be helpful to obtain opinions from municipalities and individuals that have some experience with both EZ and ABC.

Argument 16

The following appeared in an editorial in a Prunty County newspaper.

"In an attempt to improve highway safety, Prunty County recently lowered its speed limit from

55 miles per hour to 45 on all major county roads. But the 55 mph limit should be restored, because this safety effort has failed. Most drivers are exceeding the new speed limit and the accident rate throughout Prunty County has decreased only slightly. If we want to improve the safety of our roads, we should instead undertake the same kind of road improvement project that Butler County completed five years ago: increasing lane widths and resurfacing rough roads. Today, major Butler County roads still have a 55 mph speed limit, yet there were 25 percent fewer reported accidents in Butler County this past year than there were five years ago."

This editorial argues that a recent reduction in Prunty County's speed limit on its major roads, from 55 to 45 miles per hour (mph), has proven ineffective, and that the county should therefore restore its 55-mph speed limit and improve its roads. To support this argument the editorial's author points out that the accident rate has decreased only "slightly" since the speed limit was reduced. The author also points out that in nearby Butler County, which has maintained a 55-mph limit while widening and resurfacing its roads, the accident rate has decreased by 25% over the last 5 years. The editorial suffers from several problems, which render it unconvincing as it stands.

First of all, Prunty only "recently" reduced its speed limit, and only for "major" roads. Perhaps not enough time has passed to determine the effectiveness of this change in reducing the accident rate--especially if the new speed limit remains untested during a season of the year in which better driving conditions prevail. Additionally, the editorial refers only to the overall accident rate countywide. Perhaps the accident rate on the county's major roads has decreased while on minor roads not subject to the speed-limit reduction it has increased. Thus lacking reliable evidence of the effectiveness of the new speed limit it is difficult to accept the conclusion that Prunty's safety effort has failed.

Secondly, the argument assumes that all other factors affecting highway accident rates have remained unchanged since the county lowered its speed limit. Yet the author fails to provide evidence to support this assumption. It is entirely possible that the lower speed limit does in fact serve to reduce the accident rate, while some other factor, such as unseasonably poor weather, reduced law enforcement measures, or even an influx of teenage drivers to the area, has served to increase the accident rate. Without considering and ruling out these and other factors that might have served to increase the accident rate since the speed limit was lowered, the author cannot justifiably conclude that this safety effort has failed.

Thirdly, the author unfairly implies that the higher speed limit in Butler County has not served to increase the incidence of road accidents in that county. It is entirely possible that the 55-mph speed limit actually serves to increase the accident rate on Butler's high ways, but that other factors, such as stricter law enforcement measures or improved driver education, have served to decrease the accident rate to a greater extent. Without considering and ruling out these and other factors which might have served to decrease the accident rate in Butler County, the author cannot confidently recommend that Prunty County emulate Butler's speed-limit policy. Moreover, the cited statistic involves only "reported" accidents in Butler County. It is possible that an increasingly large percentage of accidents are going unreported in that county.

In conclusion, the editorial fails to convince me that Prunty County should emulate Butler County's road-safety measures. To strengthen the argument the author must account for all

other factors that might influence the accident rate on roads in both counties. To better assess the impact of the new speed limit on road safety, I would need more statistical information about the accident rate on Prunty's major roads, collected over a longer time period. I would also need to know what percentage of road accidents in Butler County go unreported.

Argument 17

The following appeared in a letter from the manager of a rock band named Double Rice.

"One year ago, tickets for Double Rice's concerts in stadiums around the country took, on average, at least 24 hours to sell out, if they sold out at all. But the band has been enjoying a surge in nationwide popularity among 14 to 25 year olds, and the 30,000 tickets for a recent concert in Megalopolis sold out in 12 minutes. Clearly the ticket sales in Megalopolis are a result both of the band's increased popularity and of the advertising campaign run in Megalopolis by the Ad Lib advertising agency. Thus, in order to ensure that the band's success in Megalopolis is repeated across the country, the band should hire Ad Lib to duplicate the Megalopolis ad campaign on a nationwide scale."

The manager of the rock band Double Rice (DR) concludes that the band should hire the advertising agency Ad Lib to promote the band throughout the country. To justify this conclusion the manager cites Ad Lib's campaign to promote a recent DR concert at a large venue in Megalopolis. Tickets for this concert sold out in 12 minutes, whereas one year ago tickets for DR concerts at large venues rarely sold out in less than 24 hours—if at all. The manager reasons that the Megalopolis success must have been attributable to both Ad Lib's efforts and DR's popularity. The manager's argument is flawed in several critical respects.

To begin with, assuming that the Megalopolis success was in fact due to DR's popularity there, the manager overlooks the possibility that Ad Lib's campaign had nothing to do that popularity. Perhaps the band recently became overwhelmingly popular due to a new hit song or to a revival of the type of music DR plays. Either scenario, if true, would serve to undermine the manager's claim that Ad Lib's efforts are to be credited for the Megalopolis success.

The manager also overlooks the possibility that one or more factors other than Ad Lib's efforts or DR's popularity were instead responsible for the Megalopolis success. For instance, perhaps DR shared the bill at the concert with another band, whose appearance was the actual reason for the concert's success. If so, this fact would seriously weaken the manager's claim that the Megalopolis success is attributable to Ad Lib's efforts and to DR's popularity in Megalopolis—whether or not that popularity resulted from Ad Lib's campaign.

Even assuming that either DR's popularity or Ad Lib's campaign, or both, were responsible for the Megalopolis success, the manager's claim that this success can be repeated elsewhere might nevertheless be unwarranted. Megalopolis might not be representative of most cities in which DR plans to appear in any one of various ways which would adversely impact ticket sales in other cities. For instance, perhaps DR hails from Megalopolis and has far more fans in Megalopolis than any other city. Or, perhaps the kind of ad campaign that is Ad Lib's specialty, although effective in Megalopolis, would not be effective in most cities.

Finally, in concluding that DR must hire Ad Lib in order to ensure similar success throughout the country, the manager assumes that Ad Lib's services are both necessary and sufficient for

this purpose. Yet the manager has not provided any evidence to substantiate either assumption. Lacking such evidence, it is just as likely that some other ad agency would be equally or more effective. Even if Ad Lib's services are necessary to achieve the manager's goal, it is entirely possible that Ad Lib's services would not suffice to ensure similar success elsewhere--due to the sorts of factors mentioned above that might have contributed to the Megalopolis success but would not come into play in other cities.

In sum, the manager has not convinced me that DR's interests would be well served if and only if it hires Ad Lib to promote the band throughout the country. To bolster the argument the manager must rule out all other possible reasons for the success of the Megalopolis concert, and must show that Ad Lib is capable of achieving similar success in other cities.

Argument 18

The following appeared in a letter to the editor of the Balmer Island Gazette.

"The population of Balmer Island increases to 100,000 during the summer months. To reduce the number of accidents involving mopeds and pedestrians, the town council of Balmer Island, should limit the number of mopeds rented by each of the island's six moped and bicycle rental companies from 50 per day to 30 per day during the summer season. By limiting the number of rentals, the town council is sure to attain the 50 percent reduction in moped accidents that was achieved last year in the neighboring island of Torseau, when Torseau's town council enforced similar limits on moped rentals."

The author of this editorial recommends that to reduce accidents involving mopeds and pedestrians Balmer Island's city council should restrict moped rentals to 30 per day, down from 50, at each of the island's six rental outlets. To support this recommendation the author cites the fact that last year, when nearby Torseau Island's town council enforced similar measures, Torseau's rate of moped accidents fell by 50%. For several reasons, this evidence provides scant support for the author's recommendation.

To begin with, the author assumes that all other conditions in Balmer that might affect the rate of moped-pedestrian accidents will remain unchanged after the restrictions are enacted. However, with a restricted supply of rental mopeds people in Balmer might purchase mopeds instead. Also, the number of pedestrians might increase in the future; with more pedestrians, especially tourists, the risk of moped-pedestrian accidents would probably increase. For that matter, the number of rental outlets might increase to make up for the artificial supply restriction per outlet--a likely scenario assuming moped rental demand does not decline. Without considering and ruling out these and other possible changes that might contribute to a high incidence of moped-pedestrian accidents, the author cannot convince me that the proposed restrictions will necessarily have the desired effect.

Next, the author fails to consider other possible explanations for the 50% decline in Torseau's moped accident rate last year. Perhaps last year Torseau experienced unusually fair weather, during which moped accidents are less likely. Perhaps fewer tourists visited Torseau last year than during most years, thereby diminishing the demand for rental mopeds to below the allowed limits. Perhaps last year some of Torseau's moped rental outlets purchased new mopeds that are safer to drive. Or perhaps the restrictions were already in effect but were not

enforced until last year. In any event, a decline in Torseau's moped accident rate during only one year is scarcely sufficient to draw any reliable conclusions about what might have caused the decline, or about what the accident rate will be in years ahead.

Additionally, in asserting that the same phenomenon that caused a 50% decline in moped accidents in Torseau would cause a similar decline in Balmer, the author relies on what might amount to an unfair analogy between Balmer and Torseau. Perhaps Balmer's ability to enforce moped-rental restrictions does not meet Torseau's ability; if not, then the mere enactment of similar restrictions in Balmer is no guarantee of a similar result. Or perhaps the demand for mopeds in Torseau is always greater than in Balmer. Specifically, if fewer than all available mopeds are currently rented per day from the average Balmer outlet, while in Torseau every available moped is rented each day, then the proposed restriction is likely to have less impact on the accident rate in Balmer than in Torseau.

Finally, the author provides no evidence that the same restrictions that served to reduce the incidence of all "moped accidents" by 50% would also serve to reduce the incidence of accidents involving "mopeds and pedestrians" by 50%. Lacking such evidence, it is entirely possible that the number of moped accidents not involving pedestrians decreased by a greater percentage, while the number of moped-pedestrian accidents decreased by a smaller percentage, or even increased. Since the author has not accounted for these possibilities, the editorial's recommendation cannot be taken seriously.

In conclusion, the recommendation is not well supported. To convince me that the proposed restriction would achieve the desired outcome, the author would have to assure me that no changes serving to increase Balmer's moped-pedestrian accident rate will occur in the foreseeable future. The author must also provide dear evidence that last year's decline in moped accidents in Torseau was attributable primarily to its moped rental restrictions rather than to one or more other factors. In order to better evaluate the recommendation, I would need more information comparing the supply of and demand for moped rentals on the two islands. I would also need to know the rate of mopedpedestrian accidents in Torseau both prior to and after the restrictions were enforced in Torseau.

Argument 19

The following appeared in a memo from the new vice president of Sartorian, a company that manufactures men's clothing.

"Five years ago, at a time when we had difficulties in obtaining reliable supplies of high-quality wool fabric, we discontinued production of our deluxe alpaca overcoats. Now that we have a new fabric supplier, we should resume production. This coat should sell very well: since we have not offered an alpaca overcoat for five years and since our major competitor no longer makes an alpaca overcoat, there will be pent-up customer demand. Also, since the price of most types of clothing has risen in each of the past five years, customers should be willing to pay significantly higher prices for alpaca overcoats than they did five years ago, and our company profits will increase."

In this memo the vice president of Sartorian, a clothing manufacturer, argues that by resuming production of alpaca (wool) overcoats, after discontinuing production of these coats five years

ago due to an unreliable alpaca supply, Sartorian would increase its profits. To support this argument the vice president points out that Sartorian now has a new fabric supplier, and reasons that since Sartorian's chief competitor has discontinued making these coats there must be pent-up consumer demand for them which Sartorian would fill. The vice president also reasons that, since overall clothing prices have risen in each of the last five years, consumers will be willing to pay higher prices for Sartorian's alpaca coats. I find the argument specious in several respects.

To begin with, the argument relies on the assumption that the new fabric supplier will be a reliable supplier of alpaca. Yet the memo provides no substantiating evidence for this assumption. Perhaps the supply problems Sartorian experienced years earlier were attributable not to its supplier at the time but rather to factors beyond any supplier's control and which might render the alpaca supply unreliable today as well. Besides, without evidence to the contrary it is entirely possible that Sartorian's new supplier will turn out to be unreliable and to be blameworthy for that unreliability.

Even if the new supplier turns out to be reliable, the memo assumes too hastily, on the basis of a competitor's discontinuing alpaca coat production, that consumer demand for alpaca coats made by Sartorian is now pent-up. Perhaps that competitor stopped making alpaca coats due to diminishing consumer demand for them. Or, perhaps other clothing manufacturers are now beginning to fill the market void by producing similar coats. Either of these scenarios, if true, would cast serious doubt on the vice president's claim that there is now pent-up alpaca coat demand from which Sartorian would profit.

Even if the vice president can substantiate the two foregoing assumptions, the argument relies on the additional assumption that consumers will be willing to pay whatever price Sartorian requires to turn a profit on its alpaca coat sales. Yet, perhaps Sartorian's costs for alpaca wool will be so high as to preclude any profit from alpaca coat sales. Also, the fact that clothing prices have been steadily increasing for five years suggests that consumers might have less disposable income for purchasing items such as alpaca coats, especially if consumers' income has not kept pace with escalating prices. Thus without stronger evidence that consumers would be both willing and able to pay high prices for Sartorian's alpaca coats the vice president cannot convince me that the proposed course of action would be a profitable one.

Finally, even if Sartorian would turn a profit from the sale of its alpaca coats, the memo's claim that the company's overall profits would increase thereby is unwarranted. Sartorian's overall profitability is a function of revenue and expenses relating to all of Sartorian's products. Since the memo provides no evidence that Sartorian will continue to be profitable in other respects, I simply cannot take the vice president's argument seriously.

In sum, the argument is unpersuasive as it stands. To bolster it the vice president must provide assurances that the new supplier will be a reliable and affordable alpaca supplier, and that consumers will be able and willing to pay whatever prices Sartorian requires in order to turn a profit from selling its alpaca coats. To better assess the argument I would need to know whether consumers are demanding alpaca coats anymore, and if so whether new competitors entering the alpaca coat market would thwart Sartorian's efforts to profit from any pent-up demand for these coats. I would also need detailed financial projections for Sartorian, to determine the likelihood that it will continue to be profitable overall, aside from its predicted

profitability from alpaca coat sales.

Argument 20

The following appeared in a memo from the president of a company that builds and sells new homes in Steel City.

"Over the past five years, the population of Steel City has increased by more than 20 percent, and family incomes in Steel City have risen much faster than the national average. Nationwide, sales of houses priced above \$150,000 have increased more than have sales of lower-priced houses. Such data indicate that we should make changes in our business to increase company profits. First, we should build fewer low-priced houses than we did last year and focus instead on building houses designed to sell at above \$150,000. Second, we should hire additional workers so that we can build a larger total number of houses than we did last year."

In this memo the president of a new-home construction firm in Steel City concludes that the firm can increase its profits by focusing on building expensive homes, priced above \$150,000, rather than lower-priced homes, and by hiring additional workers to increase the number of homes the firm can build. To support this recommendation the president cites the fact that Steel City's population has increased by more than 20% over the last five years and that family income in Steel City is rising much faster than the nationwide average. The president also points out that nationwide sales of homes priced above \$150,000 are rising faster than sales of lower-priced homes. In several respects, this evidence provides little credible support for the president's recommendation.

First, by citing Steel City's population increase in order to argue for a step-up in home construction, the speaker relies on certain unsubstantiated demographic assumptions. One such assumption is that area demand for new housing will support additional home construction in the foreseeable future. Yet lacking firm evidence that this will be the case, it is entirely possible that the area's population will stabilize, or even decrease, and that the firm will have trouble selling its new homes at profitable levels. Another unfair demographic assumption is that Steel City residents will be interested in purchasing more expensive single-family homes. Perhaps the population increase has been and will continue to be the result of an influx of retired people who regardless of their income level are interested in smaller, less expensive homes and condominiums, or even rental housing.

Secondly, by citing Steel City's fast-rising family-income levels to support the recommendation, the speaker relies on other tenuous assumptions. One such assumption is that area residents interested in buying new homes can afford homes priced over \$150,000. It is entirely possible that in Steel City family-income levels are rising rapidly primarily among current homeowners who would not be in the market for new homes in the foreseeable future, or among only a handful of the area's wealthiest residents. It is also possible that despite the rapid increase the average family income in Steel City is still low compared to national averages--too low to justify the president's recommendation to shift focus to more expensive homes.

Thirdly, even if this firm builds and can sell expensive homes according to the president's proposal, the firm's profits would not necessarily increase as a result. Hiring additional workers

adds to the expense of building a home, and of course the cost of materials will no doubt increase with the value of the homes that are built. Furthermore, in all likelihood the firm would not be able to build a greater number of expensive homes than cheaper homes. Moreover, given the scant evidence that area residents could actually afford expensive homes, it is entirely possible that the firm would have trouble selling these homes quickly and at profitable price levels. In short, without a detailed cost-benefit analysis the president cannot convince me that the proposed course of action would increase this firm's profits.

In conclusion, the president's argument is unpersuasive. To strengthen it the president must convince me that in the foreseeable future Steel City residents will actually demand and be able to afford houses costing more than \$150,000. To better evaluate the argument I would need more information about Steel City's demographic trends and about the income of area residents interested in buying new homes in the foreseeable future. I would also need a detailed analysis comparing the costs and revenues associated with the proposed course of action with the costs and revenues associated with the construction and sale of the firm's less expensive homes.

Argument 21

A recent sales study indicated that consumption of seafood dishes in Bay City restaurants has increased by 30 percent over the past five years. Yet there are no currently operating city restaurants that specialize in seafood. Moreover, the majority of families in Bay City are two-income families, and a nationwide study has shown that such families eat significantly fewer home-cooked meals than they did a decade ago but at the same time express more concern about eating healthily. Therefore, a new Bay City restaurant specializing in seafood will be quite popular and profitable.

This argument's conclusion is that a new Bay City restaurant specializing in seafood would be both popular and profitable. To justify this conclusion the argument points out that seafood consumption in Bay City's restaurants has risen by 30% during the last five years. Also, the argument points out that most Bay City families are two-income families, and cites a national survey showing that two-income families eat out more often and express more concern about eating healthily than they did ten years ago. I find the argument unpersuasive, for several reasons.

First, a 30% increase in seafood consumption at Bay City restaurants does not necessarily indicate a sufficient demand for a new Bay City restaurant serving seafood dishes only. Although a 30% increase seems significant, the actual level of consumption might nevertheless be very low. This scenario is quite possible, especially considering that there are currently no seafood restaurants in Bay City. Lacking evidence that a significant number of the city's restaurant patrons are ordering seafood, the argument's conclusion that a new seafood restaurant would be popular and profitable is unjustified.

Secondly, even if current demand would otherwise support an increase in the availability of seafood at Bay City's restaurants, the argument unfairly assumes that Bay City's restaurant patrons who order seafood would frequent the new restaurant. Perhaps the vast majority of these patrons would remain loyal to their favorite restaurant. Thus lacking evidence that these patrons would be willing to try the new restaurant the argument's claim that a new seafood

restaurant would be popular is dubious.

Thirdly, the nationwide study showing clear trends among two-income families toward dining out and eating healthily does not necessarily apply to Bay City. It is quite possible that Bay City's two-income families do not follow these general trends. For that matter, in Bay City the trend might be just the opposite. Thus the nationwide trends that the argument cites amount to scant evidence that Bay City residents in particular would frequent a new seafood restaurant in their city.

Fourth, even if most of Bay City's families are following the nationwide trends indicated above, it is unreasonable to infer that these families will necessarily patronize a new seafood restaurant in Bay City. For all we know Bay City might boast a variety of health-oriented restaurants that do not specialize in seafood. For that matter, perhaps Bay City's existing restaurants are responding to the trends by providing more healthful dishes. Moreover, perhaps either or both of these trends will soon reverse themselves--at least in Bay City--for whatever reason. Any of these scenarios, if true, would cast considerable doubt on the argument's conclusion that a new seafood restaurant in Bay City would be popular and profitable.

Finally, even if Bay City families flock to the new seafood restaurant, the restaurant would not necessarily be profitable as a result. Profitability is a function of both revenue and expense. Thus it is entirely possible that the restaurant's costs of obtaining high-quality, healthful seafood, or of promoting the new restaurant, might render it unprofitable despite its popularity. Without weighing revenue against expenses the argument's conclusion is premature at best.

In sum, the argument is unpersuasive as it stands. To bolster it the argument's author must show--perhaps by way of a reliable citywide study--that the demand among restaurant patrons for seafood is sufficient to support a new seafood restaurant, and that a sufficient number of people who order fish at Bay City restaurants will be able and willing to at least try the new restaurant. The author would also bolster the argument by providing reliable evidence that Bay City reflects the nationwide trends cited, and that these trends will continue in the foreseeable future in Bay City. Finally, to better assess the argument I would need detailed cost and revenue estimates for a new Bay City seafood restaurant--to determine the likelihood that even a popular such restaurant would turn a profit.

Argument 22

The following appeared in a memo from the president of Viva-Tech, a manufacturer of high-tech medical equipment.

"In order to reduce costs, we should close some of our existing small assembly plants and build a large central plant. Grandview would be an ideal location for this new plant. First, of the locations that we have considered, Grandview has the largest adult population, so that we will be able to staff our plant quickly and easily. Second, since the average wage earned by workers in Grandview is less than that in the other locations, we should be able to keep production costs low. Last, as an inducement for us to build there, Grandview's town council has offered to allow us to operate for the first three years without paying city taxes."

In this memo the president of Viva-Tech, a high-tech medical equipment firm, recommends

closing its small assembly plants and centralizing its operations at one location--in the city of Grandview. To support this recommendation the president points out certain attractive demographic features, as well as the town's willingness to allow Viva-Tech to operate there without paying property taxes for the first three years. However, careful scrutiny of the evidence reveals that it provides little credible support for the president's recommendation.

To begin with, the fact that Grandview's adult population is larger than that of any other locale under consideration is scant evidence in itself that Grandview would be the best location for Viva-Tech. Perhaps Grandview's adult residents are not skilled to work in the medical equipment industry. Or perhaps a large portion of its residents are retired. Or perhaps virtually all of its residents are already employed in jobs that they would be unwilling or unable to leave to work at Viva-Tech. Without considering and eliminating these and other possible reasons why Viva-Tech might have difficulty finding enough suitable employees in Grandview, the president cannot rely on the fact that Grandview has a large adult population to bolster the recommendation.

Furthermore, the fact that the earnings of the average Grandview worker are comparatively low does not necessarily mean that Viva-Tech could minimize labor costs by employing Grandview residents, as the president suggests. It is entirely possible that this low average wage is attributable to a high percentage of jobs requiring low-level skills. This scenario would be particularly likely if a large portion of Grandview's workers are teenagers and college students. In fact, the low average wage in Grandview is further evidence that Grandview residents do not possess the sorts of high-tech skills that would command a higher wage and which Viva-Tech might require among its work force.

A final problem with the argument involves Grandview's willingness to forego payment of property taxes for the first three years. Admittedly, this evidence lends some measure of support to the recommendation. However, the president ignores the possibility that other cities under consideration would be willing to make similar concessions, or provide other equally attractive financial incentives. The president also overlooks the expense of property taxes over the longer term. Lacking evidence to the contrary, it is entirely possible that Grandview's property-tax rates are otherwise comparatively high, and that in the longer term Viva-Tech's property-tax liability would be greater in Grandview than in other locales. Until the president accounts for these two possibilities, I cannot be persuaded that Grandview is the best location for Viva-Tech from a property-tax stand-point.

In the final analysis, the recommendation of Viva-Tech's president is not well supported. To strengthen it the president must provide detailed demographic evidence showing that a sufficient number of Grandview residents would be able and willing to work in Viva Tech's high-tech environment. A proper evaluation of the recommendation requires more information about Grandview's property-tax rates vis-a-vis those of other locales under consideration, and about the willingness of these other municipalities to provide their own financial or tax incentives to Viva-Tech.

Argument 23

The following appeared in a memo from the mayor of the town of Hopewell.

"Two years ago, the town of Ocean View built a new municipal golf course and resort hotel.

During the past two years, tourism in Ocean View has increased, new businesses have opened there, and Ocean View's tax revenues have risen by 30 percent. The best way to improve Hopewell's economy, and generate additional tax revenues, is to build a golf course and resort hotel similar to those in Ocean View."

In this memo Hopewell's mayor recommends that in order to stimulate the town's economy and boost tax revenues Hopewell should build a new golf course and resort hotel, just as the town of Ocean View did two years ago. To support this recommendation the mayor points out that in Ocean View during the last two years tourism has increased, new businesses have opened, and tax revenues have increased by 30%. I find the mayor's argument unconvincing in several important respects.

First of all, it is possible that the mayor has confused cause with effect respecting the recent developments in Ocean View. Perhaps Ocean View's construction of a new golf course and hotel was a response to previous increases in tourism and business development increases that have simply continued during the most recent two years. Since the mayor has failed to account for this possibility, the claim that Hopewell would boost its economy by also constructing a golf course and hotel is completely unwarranted.

Secondly, the mayor fails to account for other possible causes of the trends in Ocean View during the last two years. The increase in tourism might have been due to improving economic conditions nationwide, or to unusually pleasant weather in the region. The new businesses that have opened in Ocean View might have opened there irrespective of the new golf course and hotel. And, the 30% increase in tax revenues might have been the result of an increase in tax rates, or the addition of a new type of municipal tax.

Without ruling out these and other alternative explanations for the three recent trends in Ocean View, the mayor cannot reasonably infer based on those trends that Hopewell's economy would benefit by following Ocean View's example.

Thirdly, even if the recent trends in Ocean View are attributable to the construction of the new golf course and hotel there, the mayor assumes too hastily that the golf course and hotel will continue to benefit that town's overall economy. The mayor has not accounted for the possibility that increased tourism will begin to drive residents away during tourist season, or that new business development will result in the town's losing its appeal as a place to visit or to live. Unless the mayor can convince me that these scenarios are unlikely I cannot accept the mayor's recommendation that Hopewell follow Ocean View's example.

Finally, the mayor's argument rests on the unsubstantiated assumption that Hopewell and Ocean View are sufficiently alike in ways that might affect the economic impact of a new golf course and hotel. Hopewell might lack the sort of natural environment that would attract more tourists and new businesses to the town--regardless of its new golf course and hotel. For that matter, perhaps Hopewell already contains several resort hotels and golf courses that are not utilized to their capacity. If so, building yet another golf course and hotel might amount to a misallocation of the town's resources--and actually harm the town's overall economy.

In sum, the mayor's recommendation is not well supported. To bolster it the mayor must provide better evidence that Ocean View's new golf course and hotel and not some other phenomenon--has been responsible for boosting Ocean View's economy during the last two years. To better assess the recommendation I would need to know why Ocean View decided

to construct its new golf course and hotel in the first place--specifically, what events prior to construction might have prompted that decision. I would also need to thoroughly compare Hopewell with Ocean View--especially in terms of their appeal to tourists and businesses--to determine whether the same course of action that appears to have boosted Ocean View's economy would also boost Hopewell's economy.

Argument 24

The following appeared in a memo from the chairperson of the school board in the town of Saluda.

"For the past five years, Mr. Charles Schade has been the music director at Steel City High School, and during that time the school band from Steel City High has won three regional band competitions. In addition, the quality of the music rehearsal facilities and musical instruments at Steel City High has improved markedly over the past five years. Because of such successes at Steel City High, the Saluda school board should hire Mr. Schade to plan and direct the general music education programs for the entire Saluda school system."

In this memo the chairperson of the Saluda school board recommends hiring Schade, Steel City High's music director for the past five years, to plan and direct the school district's general music-education programs. To support this recommendation the chairperson points out that over the past five years Steel's band has won three regional awards and that the school's facilities and instruments have improved markedly. However, close scrutiny of this evidence reveals that it lends little support for the recommendation.

First of all, the chairperson unfairly assumes that the three band awards were attributable to Schade's abilities and efforts. Lacking evidence to confirm this assumption, it is entirely possible that Schade was not the school's band instructor when the band won these awards. Or, perhaps the band won all three awards early in Schade's tenure, and his predecessor is to be credited. For that matter, perhaps it was the improved quality of the band's musical instruments that should be credited for the awards. After all, the chairperson provides no evidence that Schade was actually responsible for this improvement. Without considering and ruling out other possible reasons why the band won the awards the chairperson cannot convince me of Schade's abilities or, in mm, that he should be appointed to the district job.

Even if Schade is to be credited for the band's awards, it is possible that the skills that Schade possesses and which resulted in the band's winning these awards are not the same skills required for the district position. For example, perhaps Schade's music-conducting ability or his ability to motivate individual students was responsible for the band's award winning performances. If so, then the fact that Steel's band won these awards would amount to scant evidence at best that Schade would make an effective administrator for the district.

Next, the chairperson unfairly assumes that improvements in the school's music facilities and instruments are attributable to Schade's efforts. If they are, then I would agree that Schade might possess valuable administrative skills that would serve the district well. Yet, just because these improvements occurred during Schade's tenure it is unreasonable to assume that Schade is to be credited for them. It is entirely possible that the improvements were the result of another administrator's efforts, or even the efforts of parents. Without showing clearly that

Schade, and not some other person, was responsible for the improvements, the chairperson cannot convince me that Schade possesses the administrative abilities needed for the district job.

Finally, in recommending Schade for the job the chairperson fails to consider other possible job candidates. Even if all the evidence shows that Schade is well-qualified, perhaps one or more other individuals would be even more suitable for the job. Without addressing this possibility the chairperson cannot convince me that the district should hire Schade.

In conclusion, the argument is unpersuasive as it stands. To convince me that Schade would be effective in the new job, the chairperson must provide clear evidence that the band's awards and especially the improvements cited are attributable to Schade's abilities and efforts, and that these abilities would translate directly to those required for the district position. Finally, to better evaluate the argument I would need to compare Schade's qualifications with those of other possible job candidates.

Argument 25

The following appeared as part of a memo from the president of Automate, a company that manufactures automobiles.

"It has come to my attention that Sparks, Inc., the manufacturing company that just moved into our state, is advertising job openings at salaries that are twice as high as those paid to our experienced assembly-line workers. Some of our employees have already left to work for Sparks. In order to keep our best staff, we must pay them salaries equal to those Sparks pays its employees. Otherwise we will continue to lose employees in the future, because Sparks must staff the additional new plants that it plans to build in the state."

In this memo the president of Automate, an automobile manufacturer, concludes that to retain its best employees Automate must offer them salaries equal to those that Sparks automobile manufacturing pays its employees. To justify this conclusion the president points out that Sparks has just moved into the state and is now advertising job openings with salaries twice as high as those Automate pays its assembly-line workers, and that some Automate employees have already defected to Sparks. As further support for the argument, the president notes that Sparks plans to build additional plants in the state and will need to staff those plants. I find the argument unconvincing on several grounds.

First, the memo does not indicate what kinds of jobs Sparks is now advertising--the ones for which salaries are to be twice those paid to Automate's assembly-line workers. Those jobs might be top management positions or other jobs for which salaries are often significantly higher than those for assembly-line work. If so, this fact would serve to refute the president's assumption that Sparks is paying higher salaries than Automate for similar work.

Secondly, the president assumes that the reason why some Automate workers have defected to Sparks is that Sparks has offered them higher salaries. Yet, the president fails to provide evidence to substantiate this assumption. Lacking such evidence, those defectors might have gone to work for Sparks because the city where Sparks is located is a preferable place to live, or because Sparks offers other job incentives that Automate does not.

And, if the defectors accepted jobs at Sparks before Sparks began offering higher salaries,

then salary could not have been a factor in their decision to defect to Sparks. In short, until the president establishes a clear causal relationship between the advertised salaries and the defection of some Automate employees to Sparks, the president cannot reasonably conclude that Automate must increase its salaries in order to prevent additional employees from defecting to Sparks in the future.

Thirdly, even assuming that those defectors did leave Automate because Sparks offered higher salaries for similar work, the president's argument rests on the additional assumptions that the number of defectors is significant and that these defectors are valuable to Automate. Yet the president fails to substantiate either assumption. Perhaps only a very small percentage of Automate's workers have defected; if so, the president's proposed salary increases might amount to an overreaction. Or, perhaps the defectors were among Automate's least valuable employees; for that matter, perhaps Automate's most valuable employees are the ones who are most loyal and would not leave Automate even if they were offered a higher salary elsewhere. Without substantiating both assumptions, the president cannot reasonably conclude that Automate must raise the salaries of its best workers in order to retain them.

Finally, the mere fact that Sparks plans to build additional new plants in the state amounts to scant evidence that Automate will continue to lose valuable employees unless it raises their salaries. Perhaps Sparks plans to staff those new plants with workers from its other plants, or from other sources besides Automate. Or, perhaps Sparks is advertising high salaries now simply to gain a foothold into the state's labor market, and that once Sparks is established in the state it will offer lower salaries for new jobs. Besides, Sparks' plan to build additional plants might amount to sheer speculation, in which case the president's proposed salary increases would seem hasty.

In sum, the president's recommendation seems ill-conceived, at least lacking additional supporting evidence. To bolster the argument the president must provide clear evidence that a significant percentage of Automate's valuable employees have defected to Sparks because Sparks offered them higher salaries for similar work rather than for some other reason. The president must also provide better evidence that this is a trend that is likely to continue and to harm Automate's operations unless Automate boosts the salaries of its best employees to match the salaries Sparks would pay those employees.

Argument 26

The following is a memo from the superintendent of the Mylar school district.

"A recent six-month study, in which breakfast was made available at school for 100 schoolchildren ages five to twelve, found that children on the breakfast plan were less likely than other children to be absent from or late for school. Clearly, eating breakfast before school plays a role in reducing student absenteeism and tardiness. It is also well known that children who regularly eat a healthful breakfast tend to perform better in school. Therefore, in order to reduce absenteeism and tardiness and to improve academic performance in all of Mylar's elementary and secondary schools, we should provide breakfasts for all students before each school day."

In this memo the superintendent of the Mylar school district concludes that by providing

breakfast to all its students the district would reduce tardiness and absenteeism as well as improve the overall academic performance of its students. To support this conclusion the superintendent points out that during a 6-month trial program involving 100 students ranging in age from 5 to 12, these students were less likely to be tardy or absent than other students. The superintendent also cites the well-known fact that eating healthful breakfasts on a regular basis improves academic performance. The superintendent's argument is problematic in several respects, rendering the argument unconvincing as it stands.

The argument's chief problem is that it relies on numerous unsubstantiated assumptions about the 6-month study. One such assumption is that the participants' regular and punctual attendance was attributable to the fact that breakfasts were provided. Yet logic and common sense inform me that the results might have been due instead to one or more other factors. Perhaps these particular students were compelled to show up punctually and regularly for some other reason. Perhaps the 100 participants were comparatively reliable and disciplined children who are less likely in any event to be late for school. Or perhaps the participants are relatively healthy and therefore less likely to be absent from school than the average student. Moreover, it is uncertain whether the program's participants even ate the breakfasts that the trial program provided. In short, without considering and ruling out alternative explanations for the study's results, the superintendent cannot justifiably conclude that the results are due to the fact that breakfasts were provided to participating students.

Even if the participants' punctual and regular attendance was due to the breakfasts provided to them, the statistical reliability of the trial program's results is questionable. The number of participants, 100, might constitute an insufficiently small sample to draw any reliable conclusions about how district students 5-12 years of age would behave under similar conditions---as a group. The larger this group compared to the sample of 100 participants, the less reliable the study's results. Also, the sample might be unrepresentative of district students as a group. For example, perhaps the 100 participants happened to be children who eat small dinners and are therefore hungry for breakfast.

Even if the 100 participants are statistically representative of district students 5-12 years of age, one cannot infer that older, secondary-school students would behave similarly under similar conditions. Yet by concluding that the district should implement the program for its secondary-school students as well, the superintendent seems to assume without supporting evidence that this is the case. In short, lacking assurances that the 100 participants are statistically representative of all district students, the superintendent can not draw any reliable conclusions based on the study.

Aside from the problems involving the 6-month study, the superintendent's conclusion that the overall academic performance of district students would improve under the proposed program is unwarranted. By relying on the fact that eating healthful breakfasts on a regular basis improves academic performance, the superintendent assumes that the district's breakfasts would be healthful and that students would eat them on a regular basis.

Yet no evidence is offered to substantiate these crucial assumptions. It is entirely possible that the district's breakfasts would not be sufficiently healthful, or that district students would not eat these breakfasts regularly. In fact, the superintendent has not shown either that the trial program's participants or that the broader population of district students would eat healthful breakfasts, or any breakfast at all, under any circumstances.

In conclusion, the superintendent's argument is specious. To bolster it she must provide clear evidence that the 100 participants in the trial program actually attended school regularly and punctually because of the breakfasts provided, and that these 100 students are statistically representative not only of other 5-12 year-olds but of older students as well--as a group. Finally, to better evaluate the claim that the program would improve academic performance I would need more information about the healthfulness of the breakfasts provided under the proposed program.

Argument 27

The following appeared in a popular health and fitness magazine.

"A ten-year study of a group of 552 men from Elysia showed that long-term consumption of caffeinated black tea was associated with a much lower risk of stroke. Of these men, those who drank more than three cups of black tea a day had a 70 percent lower risk of stroke than those who drank no tea. These results suggest that health-conscious people should consume at least three cups of black tea a day, beginning early in life."

This magazine article concludes that in order to reduce the risk of stroke people should consume at least three cups of black tea per day, beginning at an early age. To justify this conclusion the article cites a 10-year study involving 552 men from Elysia. Among these men those who consumed at least three cups of caffeinated black tea each day were at 70% lower risk of stroke than those who consumed no tea. Based on this evidence, I find the article's conclusion to be unjustified in several respects.

To begin with, the article's author provides no evidence that the study's two groups were otherwise at similar risk of stroke. Lacking such evidence, it is entirely possible that the difference in stroke risk is attributable to some other phenomenon. Perhaps the average age of the tea drinkers was significantly lower than that of the other group. Assuming that stroke risk generally increases with age, this scenario would provide an equally plausible explanation for the difference in stroke risk between the two groups. Or, perhaps the tea-drinkers tended to engage in other activities that reduced their stroke risk, or to avoid activities that increased that risk, whereas the other group did not.

Even assuming that Elysian men do indeed reduce stroke risk by drinking three cups of black tea each day, it is nevertheless unfair to infer that women and non-Elysians would benefit similarly from drinking black tea. Perhaps women do not derive this same benefit from black-tea consumption; for that matter, perhaps for women the author's prescription would actually increase stroke risk. Also, perhaps Elysians have certain other habits or certain inherited traits needed for a person to reduce his or her stroke risk by drinking black tea habits or traits which are far less common among non-Elysians.

Even if any person would reduce his or her risk of stroke by drinking at least three cups of black tea each day, the author overlooks the possibility that stroke risk can just as effectively be reduced by other means as well. Some other type of tea or herb might be just as beneficial in this respect, or perhaps even more so. Or, people who weigh less than the men in the study might derive the maximum benefit from black tea by drinking less than three cups per day. For that matter, perhaps drinking 3 cups or more would amount to a harmful overdose for these

people. Without accounting for these possibilities the author's recommendation seems premature at best.

Finally, even if all adult men and women would reduce their stroke risk by following the author's prescribed regimen for up to a ten-year period, it is possible that following this regimen for a longer period would actually harm one's health. Without the benefit of a longer study--one in which subjects consume black tea daily from an early age up until an age at which strokes are likely in any event, the author simply cannot justify the advice that health-conscious people adhere to the prescribed regimen from an early age.

In sum, the argument is weak as it stands. To strengthen it the author must provide evidence that the study's two groups were similar in all other ways that might possibly affect their risk of stroke, and that it was the tea itself rather than some other habit--that caused the comparatively low risk of stroke among the tea-drinking group. The author must also show that women and non-Elysians benefit similarly from the prescribed amount of black tea. To better assess the argument it would be useful to know what alternatives are available for reducing stroke risk, whether the benefits of drinking black tea vary with age or body weight, and the potential longer-term health hazards of consuming black tea on a daily basis.

Argument 28

The following appeared in a report of the Committee on Faculty Promotions and Salaries at Elm City University.

"During her seventeen years as a professor of botany, Professor Thomas has proved herself to be well worth her annual salary of \$50,000. Her classes are among the largest at the university, demonstrating her popularity among students. Moreover, the money she has brought to the university in research grants has exceeded her salary in each of the last two years. Therefore, in consideration of Professor Thomas' demonstrated teaching and research abilities, we recommend that she receive a \$10,000 raise and a promotion to Department Chairperson; without such a raise and promotion, we fear that Professor Thomas will leave Elm City University for another college."

In this report an Elm City University committee recommends increasing Professor Thomas' salary and promoting her to Department Chairperson because of her effectiveness as a teacher and researcher. To support this recommendation the report points out that Thomas' classes are among the University's most popular and that last year the amount of grant money she attracted to the University exceeded her \$50,000 salary. The committee argues further that unless the University implements its recommendation Thomas is likely to defect to another school. For several reasons, the evidence offered in support of the recommendation provides little credible support for it.

First, the recommendation relies on the assumption that the popularity of Thomas' classes is attributable to her effectiveness as a teacher. Yet this assumption overlooks other possible reasons for the popularity of these classes. Perhaps Thomas is a comparatively lenient grader; or perhaps the classes she teaches are requirements for every science student. Without considering and eliminating these and other possible alternative explanations for the popularity of Thomas' classes, the committee cannot convincingly conclude based on that popularity that

Thomas is an effective teacher and therefore should be granted a raise and a promotion.

Secondly, the mere fact that the amount of grant money Thomas attracted to the University last year exceeded her salary proves nothing about either her teaching abilities or her research abilities. Perhaps last year was an aberration, and in other years Thomas did not attract much grant money. For that matter, perhaps many--or even most--other professors at the University attracted even more grant money than Thomas, relative to their salary levels. Under either scenario, Thomas would appear undeserving of the recommended raise and promotion based on this particular criterion.

Thirdly, the report provides no evidence whatsoever regarding the likelihood that Thomas would leave the University if she is not granted the proposed raise and promotion. Lacking such evidence, it is entirely possible that Thomas is quite content in her current position and at her current salary level. Thus the committee cannot justifiably rely on this claim to bolster its recommendation.

In conclusion, the committee's recommendation is ill-founded. To strengthen it the committee must provide clear evidence that Thomas is in fact an effective teacher--perhaps by citing student or peer evaluations. The committee must also provide specific evidence of Thomas' research abilities--perhaps by listing scientific journals that have published the results of her work. Finally, to better evaluate the argument I would need more information about the degree to which Thomas is content in her current position and at her current salary, and whether any other University would be willing to offer her a more attractive employment package.

Argument 29

The following appeared in a newsletter distributed at a recent political rally.

"Over the past year, the Consolidated Copper Company (CCC) has purchased over one million square miles of land in the tropical nation of West Fredonia. Mining copper on this land will inevitably result in pollution and environmental disaster, since West Fredonia is home to several endangered animal species. But such disaster can be prevented if consumers simply refuse to purchase products that are made with CCC's copper until the company abandons its mining plans."

The author of this newsletter excerpt concludes that if consumers refuse to buy products made with Consolidated Copper Company (CCC) copper the company will eventually abandon its mining plans in the nation of West Fredonia, thereby preventing pollution and an "environmental disaster" in that country. To justify this conclusion the author points out that CCC has recently bought more than a million square miles of land in West Fredonia, and that West Fredonia is home to several endangered animal species. I find this argument specious on several grounds.

First, the author provides no evidence that the West Fredonia land that CCC has acquired amounts to a significant portion of land inhabited by endangered animal species, or that CCC's land is inhabited by endangered animal species at all. Nor does the author provide clear evidence that CCC's mining activities are of the type that might cause pollution, the extinction of animal species, or any other environmental damage. Lacking such evidence the author

simply cannot convince me that CCC must abandon its plans in order that such damage be prevented.

Secondly, even assuming CCC's planned mining activities in West Fredonia will cause pollution and will endanger several animal species, it is nevertheless impossible to assess the author's broader contention that CCC's activities will result in "environmental disaster," at least without an agreed-upon definition of that term. If by "environmental disaster" the author simply means some pollution and the extinction of several animal species, then the claim would have merit; otherwise, it would not. Absent either a clear definition of the term or clear evidence that CCC's activities would carry grave environmental consequences by any reasonable definition, the author's contention that CCC's activities will result in environmental disaster is simply unjustified.

Thirdly, the author's position that environmental disaster is "inevitable" absent the prescribed boycott precludes the possibility that other measures can be taken to prevent CCC from carrying out its plans, or to offset any harm that CCC causes should it carry out its plans. Yet the author fails to provide assurances that no other means of preventing the predicted disaster are available. Lacking such evidence the author cannot reasonably conclude that the proposed boycott is needed to prevent that disaster.

Finally, even if the prescribed boycott is needed to prevent pollution and environmental disaster in West Fredonia, the author assumes too hastily that the boycott will suffice for these purposes. Perhaps additional measures would be required as well. For instance, perhaps consumers would also need to boycott other companies that pollute West Fredonia's environment. In short, without any evidence that the recommended course of action will be enough to prevent the predicted problems, the author's conclusion remains dubious at best.

In sum, as it stands the argument is wholly unpersuasive. To bolster it the author must show that CCC's planned mining activities on its newly acquired land will pollute and will threaten endangered animal species. The author must also define "environmental disaster" and show that the inevitable results of CCC's activities, absent the proposed boycott, would meet that definition. To better assess the argument it would be useful to know what other means are available for preventing CCC from mining in West Fredonia or, in the alternative, for mitigating the environmental impact of those mining activities. Also useful would be any information about the likelihood that the boycott would be effective in accomplishing its intended objectives.

Argument 30

The article entitled 'Eating Iron' in last month's issue of Eating for Health reported that a recent study found a correlation between high levels of iron in the diet and an increased risk of heart disease. Further, it is well established that there is a link between large amounts of red meat in the diet and heart disease, and red meat is high in iron. On the basis of the study and the well-established link between red meat and heart disease, we can conclude that the correlation between high iron levels and heart disease, then, is most probably a function of the correlation between red meat and heart disease. The following appeared as a letter to the editor of a national newspaper.

In this argument the author cites a study correlating the amount of iron in a person's diet with

the person's risk of heart disease. The author also cites a well-established correlation between diets that include large amounts of red meat, which is high in iron, and the incidence of heart disease. The author concludes that the correlation observed in the study is a function of the correlation between red meat and heart disease. This argument suffers from a series of poor assumptions, which render it wholly unpersuasive as it stands.

To begin with, the author provides no evidence that the study's results are statistically reliable. In order to establish a strong correlation between dietary iron and heart disease, the study's sample must be sufficient in size and representative of the overall population of heart-disease victims. Lacking evidence of a sufficiently representative sample, the author cannot justifiably rely on the study to draw any conclusion whatsoever.

Even assuming that the study is statistically reliable, a direct correlation between a high-iron diet and heart disease does not necessarily prove that the former causes the latter. While a high correlation is strong evidence of a causal relationship, in itself it is not sufficient. The author must also account for all other possible factors leading to heart disease, such as genetic propensity, amount of exercise, and so forth. Lacking evidence that the heart-disease sufferers whom the study observed were similar in all such respects, the author cannot justifiably conclude that a high-iron diet is the primary cause, or even a contributing cause, of heart disease.

Similarly, a correlation between a diet, which includes large amounts of red meat and heart disease, does not necessarily infer a causal relationship. Lacking evidence to the contrary, it is possible that red-meat eaters are comparatively likely to incur heart disease due to factors that have nothing to do with the amount of red meat in their diet. Perhaps red-meat eaters are the same people who generally overeat, and it is obesity rather than the consumption of red meat specifically that causes heart attacks. The author must consider and eliminate this and other possible reasons why red-meat eaters are more likely than other people to suffer from heart disease. Otherwise, I cannot accept the author's implicit claim that eating red meat is any more likely to cause heart disease than eating other foods.

Even assuming that a high-iron diet, including a diet high in red meat, promotes heart disease, the author cannot reasonably conclude that this causal relationship fully explains the study's results. The author overlooks the possibility that other foods are also high in iron, and that the study's participants ate these other foods as well as, or instead of, red meat. Without accounting for this possibility the author cannot convincingly conclude from the study that red meat is the chief cause of heart disease.

In conclusion, the argument unfairly assumes that correlation is tantamount to causation. To strengthen the argument, the author must provide clear evidence that a high-iron diet contributes to heart disease. The author must also provide clear evidence that people who eat red meat are more likely to incur heart disease because of the amount of red meat in their diet, rather than some other factor. To better evaluate the reliability of the study upon which the author's conclusion depends, I would need more information about the size and makeup of the study's sample. I would also need to know whether other foods are also high in iron and, if so, which high-iron foods the study's participants ate on a regular basis.

Argument 31

"Your recent article on corporate downsizing in the United States is misleading. The article*

gives the mistaken impression that many competent workers who lost jobs as a result of downsizing face serious economic hardship, often for years, before finding other suitable employment. But this impression is contradicted by a recent report on the United States economy, which found that since 1992 far more jobs have been created than have been eliminated. The report also demonstrates that many of those who lost their jobs have found new employment. Two-thirds of the newly created jobs have been in industries that tend to pay above-average wages, and the vast majority of these jobs are full-time."

**Downsizing is the process in which corporations deliberately reduce the number of their employees.*

This editorial disagrees with a certain article's claim that as a result of widespread corporate downsizing many able workers have faced serious long-term economic hardship--due to their inability to find other suitable employment. To justify its disagreement with this claim the editorial cites the following three findings of a recent report: (1) There has been a net increase in the number of new jobs created since 1992, (2) many workers who lost their jobs have found other work, and (3) most newly created jobs are full-time positions in industries which tend to pay above-average wages. Careful scrutiny of these findings, however, reveals that they accomplish little toward refuting the article's claim.

Regarding the first finding, the editorial overlooks the possibility that most of the newly created jobs since 1992 are not suitable for job-seekers downsized by corporations. Perhaps the vast majority of these jobs involve food serving, clerical assistance, cleaning and maintenance, and other tasks requiring a low level of skill and experience. At the same time, perhaps most downsized job-seekers are highly educated middle-managers looking for the same type of work elsewhere. In short, lacking evidence that the newly created jobs match the skills, experience, and interests of the downsized corporate employees, the editorial's author cannot convincingly refute the article's claim.

As for the second finding, the term "many" is far too vague to allow for any meaningful conclusions; if "many" amounts to an insignificant percentage of downsized employees, then the finding is of little use in refuting the article's claim. Moreover, the workers to whom this finding refers are not necessarily downsized corporate employees. To the extent that they are not, this second finding is irrelevant in drawing any conclusions about the impact of corporate downsizing on downsized employees.

The third finding would lend support to the author's position only under two assumptions: (1) that the newly created jobs in those high-paying industries are suitable for downsized corporate employees, and (2) that the new jobs are among the high-paying ones. Otherwise, downsized employees seeking jobs would be unlikely to regain their former economic status by applying for these newly created positions, whether or not these positions are full-time.

In sum, the author has not effectively refuted the article's claim that corporate downsizing has worked economic hardship on downsized corporate employees. To more effectively refute the claim the author should provide clear evidence that most of those job-seekers are able to fill the sorts of new jobs that have been created since 1992, and that these new positions are suitable for those job-seekers given their work experience, areas of interest, and former salaries.

Argument 32

According to a poll of 200 charitable organizations, donations of money to nonprofit groups increased by nearly 25 percent last year, though not all charities gained equally. Religious groups gained the most (30 percent), followed by environmental groups (23 percent), whereas educational institutions experienced only a very small increase in donations (3 percent). This poll indicates that more people are willing and able to give money to charities but that funding for education is not a priority for most people. These differences in donation rates must result from the perception that educational institutions are less in need of donations than are other kinds of institutions.

In this argument the author cites a poll showing that the amount of charitable donations increased last year, but that the increase to educational institutions was far less than to either religious or environmental groups. Based on this evidence the author concludes that more people are willing and able to make charitable donations, but that education is not a priority for most people. The author also concludes that the discrepancy among donation rates is the result of a general perception that educational institutions are in less need of money than other institutions are. This argument depends on several unsubstantiated assumptions and is therefore unpersuasive as it stands.

First of all, the author's conclusions about people's willingness to donate to the three types of charities listed depend on the assumption that the poll results are statistically reliable. Yet, the author offers no evidence to substantiate this assumption. The author must show that the 200 charitable organizations polled constitute a sufficiently large sample of religious, environmental, and educational charities, and that this sample is representative of all such charities. Otherwise, the author cannot confidently draw any general conclusions about the willingness of people to donate to these three types of institutions, or about general perceptions regarding the needs of any such institutions.

Similarly, the author's sweeping claim that "more people are willing and able to give money to charities" depends on the assumption that the poll results are sufficiently representative of charitable giving in general. Yet, the author offers no evidence to substantiate this assumption. The author must show that the 25% total increase in the rate of donations to the three types of institutions polled is representative of the increase in donations to all types of charities. The author must also show that the total number of donors actually increased last year; as it stands the argument leaves open the possibility that the total number of donors decreased last year while the average amount given by each donor increased. Absent evidence to support these assumptions, the author's broad conclusion that "more people are willing and able" to make charitable donations is dubious at best.

Additionally, the author provides no evidence whatsoever for the claim that educational institutions are perceived as less needy than other institutions, or that this perception explains the lower donation rate to educational institutions. Lacking such evidence, there are many other possible explanations for the discrepancy in donation rates. Perhaps people's perception is that educational institutions are more likely than the other types to squander or misuse donated money; or perhaps most donors are simply more interested in advocating religions or

environmental protection than in subsidizing education. For that matter, perhaps among all charitable organizations educational institutions ranked third last year in terms of gifts received bettered only by religious and environmental charities. Such evidence would serve to undermine the author's claim that funding for education is "not a priority for most people."

In conclusion, the argument is indefensible as it stands. To strengthen it the author must assure me that the poll results accurately reflect donation rates not only to all religious, environmental, and educational institutions but also to the broader group of all charitable institutions. The author must also provide clear evidence for the claimed perception about the need of educational institutions and that this perception, and not some other factor, explains the comparatively low donation rate to these institutions.

Argument 33

A new study collected data that shows that people who snore are more likely to gain weight than are people who do not snore. It is well known that many people who snore also stop breathing frequently during the night for a few seconds, a condition called sleep apnea. The interruption of breathing wakes the person---often so briefly that the waking goes unnoticed---and can leave the person too tired during the day to exercise. Anyone who snores, therefore, should try to eat less than the average person and to exercise more

In this argument the speaker concludes that any person who snores should try to eat less and exercise more than the average person. To justify this conclusion the speaker points out that many snorers awaken frequently during sleep--often so briefly that they are unaware that they are awake in order to catch their breath (a condition called sleep apnea), and as a result are too tired during normal waking hours to exercise. The speaker also cites data collected during a recent study, suggesting that snorers are more likely to gain weight than other people. This argument is flawed in several critical respects.

First, the speaker provides no assurances that the recently collected data suggesting a correlation between snoring and weight gain are statistically reliable. Perhaps the study's subjects were unrepresentative of the overall population in terms of other traits and habits that might affect body weight. Lacking such evidence the speaker simply cannot draw any firm conclusions based on the study about the relationship between snoring and weight gain.

Even assuming a strong correlation between snoring and weight gain among the general population, the speaker has not adequately shown that sleep apnea causes weight gain. A correlation is one indication of a causal relationship, but in itself does not suffice to prove such a relationship. It is entirely possible that some other medical condition, or some other trait or habit, that causes snoring also causes weight gain. Without establishing clearly that snoring at least contributes to weight gain, the speaker cannot convince me that snorers should either eat less or exercise more than the average person.

Even if many snorers suffer from sleep apnea and tend to gain weight as a result, the speaker's advice that "anyone who snores" should try to eat less and to exercise is nevertheless unwarranted. It is entirely possible that some--or perhaps even most--snorers do not suffer from sleep apnea, or are not too tired to exercise, or do not in any event tend to gain weight. Without ruling out these possibilities, the speaker must expressly limit the advice to

those snorers whose snoring causes weight-gain.

Even if the speaker's advice were modified as indicated above, the advice to exercise would still be logically unsound. If a person with sleep apnea is too tired to exercise as a result, then simply advising that person to exercise begs the question: What should the person do to eliminate the cause of the tiredness? Thus the speaker should determine the cause of sleep apnea and modify the advice so that it targets that cause. Of course, if it turns out that weight gain is one cause of snoring and sleep apnea, then the speaker's advice that snorers should try to eat less would have considerable merit. Yet, without any evidence that this is the case, the speaker's advice might be at least partially ineffective in counteracting a snorer's tendency to gain weight.

In sum, the speaker's advice for "any" snorer is ill-conceived and poorly supported. To lend credibility to this advice the speaker should provide evidence that the recently collected data reflect the general population. To better assess the argument it would be useful to know all the possible causes of snoring and of sleep apnea.

Argument 34

The following appeared in the editorial section of a local newspaper.

"The librarians in our town's school system have reported that the number of trips that our students make to their school library on a voluntary basis has decreased significantly in recent years. For example, the average seventh-grade student visited the school library five times last year, but four of those visits were part of required classroom activities. This shows that our students are reading less than in the past. To address this problem, our town needs to improve the atmosphere of the libraries so that they will be comfortable places in which to work. If students view the libraries as uncomfortable, then they are unlikely to want to spend much time there."

In this editorial the author claims that the town's students are reading less, and that by improving the atmosphere in the town's school libraries students would visit their school library more frequently and, in turn, would read more. To support these claims the author points out that the number of annual visits students make to their school library, on average, has decreased significantly in recent years. Specifically, the average seventh grader paid five such visits last year, four of which were required for classes. Close inspection of the evidence reveals, however, that it lends little credible support for the proposed course of action.

First, the author unfairly assumes that since the number of library visits per student is declining the amount of reading on the part of students must also be declining. This poor assumption overlooks the possibility that students are doing more reading or checking out more reading materials during each library visit. It also ignores the possibility that more and more students are obtaining reading material elsewhere—for example, from public libraries or from the Internet. Without considering and ruling out these possibilities, the author cannot justifiably conclude that students are reading less merely because they are visiting their school library less often.

Secondly, the author assumes that the reason for the declining number of library visits is that the library is uncomfortable. Yet, the author offers no evidence to substantiate this assumption.

Lacking such evidence, a variety of other factors might account for the decline. As noted above, perhaps students are becoming less dependent on the school library for obtaining reading material and information. Besides, lacking evidence to the contrary it is entirely possible that library atmosphere is completely insignificant to most students.

Thirdly, the author assumes that improving atmosphere and comfort is necessary to reverse the current trend. However, even if the surroundings go unchanged there might be other ways to attract students to their library. Perhaps increasing the number of computer terminals or the number of staff members would reverse the current trend. Or perhaps increasing the number of books and periodicals, or enhancing their variety, would be effective. In short, without ruling out all other possible means of achieving the desired results, the author cannot convince me that the proposed course of action is necessary.

Finally, the author assumes that improving the library's atmosphere would suffice to increase the frequency of student visits and the amount of reading on the part of students. Yet, the author offers no evidence that these improvements alone would suffice. In fact, a more comfortable library might actually discourage students from reading by creating a social rather than work atmosphere.

In sum, the recommendation is not well supported. To strengthen the argument the author must provide clear evidence that the school's students are in fact reading less and that if they visit the school library more frequently they will read more. The author must also provide evidence--perhaps by way of a student survey--that the library atmosphere is the chief determinant of the frequency with which students visit the library. Finally, to better evaluate the argument I would need to know what alternatives, if any, are available for increasing the frequency with which students visit their library, and for increasing the amount that students read.

Argument 35

The following appeared in an editorial in a business magazine.

"Although the sales of Whirlwind video games have declined over the past two years, a recent survey of video-game players suggests that this sales trend is about to be reversed. The survey asked video-game players what features they thought were most important in a video game. According to the survey, players prefer games that provide lifelike graphics, which require the most up-to-date computers. Whirlwind has just introduced several such games with an extensive advertising campaign directed at people 10 to 25 years old, the age-group most likely to play video games. It follows, then, that the sales of Whirlwind video games are likely to increase dramatically in the next few months."

This editorial concludes that a two-year decline in sales of Whirlwind's video games is about to reverse itself, and that sales will increase dramatically in the next few months. To justify this conclusion the editorial's author cites a recent survey in which video-game players indicated a preference for games with realistic graphics requiring state-of-the art computers. The editorial then points out that Whirlwind has just introduced several such games, along with an extensive advertising campaign aimed at people 10-25 years old---the demographic group most likely to play video games. I find this argument specious on several grounds.

First, the author provides no assurances that the survey on which the argument depends is statistically reliable. Unless the survey's respondents are representative of the overall population of video-game enthusiasts, the author cannot rely on it to predict the success of Whirlwind's new games. For all we know a significant percentage of the respondents were not 10-25 years of age; for that matter, perhaps the number of respondents was too low to ensure that they are typical of video-game enthusiasts in that age group.

Secondly, the argument relies on the assumption that the two-year decline in Whirlwind's sales is attributable to a problem that Whirlwind's introduction of its new games and ad campaign will solve. Yet it is entirely possible that the decline was due to factors such as imprudent pricing and distribution strategies or poor management, and that these problems have not been remedied. In fact, perhaps the same advertising agency that is promoting Whirlwind's new games also promoted Whirlwind's earlier games, and it was the agency's inability to attract interest among the key demographic group that caused the decline. Since the author has not clearly identified the cause of the decline, I cannot be convinced that Whirlwind's new strategy will reverse that decline at all let alone dramatically.

Thirdly, even if the ad campaign successfully attracts many 10-25 year-olds to Whirlwind's new games, the argument rests on the further assumption that this result will suffice to cause the predicted sales increase during the next few months. Yet this need not be the case. Perhaps Whirlwind's new state-of-the-art games are prohibitively expensive for the key demographic group. Or perhaps Whirlwind's competitors are now introducing similar games at lower prices or with additional features that render them more attractive to video-game enthusiasts than Whirlwind's new games. Unless the author can rule out such possibilities, I simply cannot be swayed by the prediction that Whirlwind is about to experience a dramatic increase in sales.

Finally, even if the author can substantiate the foregoing assumptions, I remain unconvinced that the impending increase in sales will occur within the next few months. Perhaps video-game sales are highly seasonal and Whirlwind will need to wait longer than two months to see the dramatic increase it expects. If so, the author must modify the prediction accordingly.

In sum, the argument is unconvincing as it stands. To strengthen it the author must provide clear evidence that video-game enthusiasts 10-25 years of age would be interested in Whirlwind's new games, and that they could afford to buy them. To better assess the argument I would need to know (1) what caused the two-year sales decline to begin with, and whether Whirlwind's new strategy eliminates that cause; (2) what competing products might serve to diminish sales of Whirlwind's new games during the next few months; and (3) when Whirlwind's introduction of its new games has occurred in relation to the peak video-game sales season, if any.

Argument 36

The following appeared in the editorial section of Monroetown's local newspaper.

"Mayor Brown was recently re-elected by a clear majority of 52 percent of Monroetown's voters. Her re-election, however, does not show that most people in our town favored Mayor Brown's proposal for tax reduction over that of her opponent, Mr. Greene, who proposed raising taxes

to improve education. It has been shown that voters nationwide tend to re-elect people already in office, regardless of candidates' proposals. In fact, a local survey after the election showed most people in Monroetown disagreed with Mayor Brown's proposal. Clearly most people in Monroetown favor improving education and therefore approve of Mr. Greene's proposal despite the fact that they did not vote for him."

The author of this editorial concludes that most Monroetown residents favor Greene's proposal to raise taxes in order to improve education over Brown's proposal to cut taxes, even though incumbent Brown defeated Greene by way of a 520/o majority vote in a recent mayoral election. To support this condusion the author points out a nationwide tendency to reelect incumbent candidates regardless of their positions. The author also points out that a survey taken after the election showed that most Monroetown residents oppose Brown's proposal. As the following discussion shows, the author's argument is not well supported by the evidence.

First of all, the author unfairly assumes that the nationwide tendency applies specifically to Monroetown residents. Lacking evidence that Monroetown voters reflect this general tendency, it is entirely possible that Monroetown residents vote strictly according to their position on the issues. For that matter, it is possible that Monroetown voters tend strongly to vote against incumbents, in which case the author's claim that Monroetown residents oppose Brown's proposal would more flagrantly fly in the face of the election results.

Secondly, the author fails to indicate when the statistics showing this nationwide tendency were collected. The longer the time period between the collection of these statistics and the election, the greater the possibility that the tendency has changed over this time span, and the less justifiable the author's reliance on these statistics to support the claim that Monroetown residents oppose Brown's proposal.

Thirdly, the author fails to indicate how much time passed between the Brown-Greene election and the survey showing that most Monroetown residents oppose her proposal. If the survey was conducted immediately after the election, then the fact that the election results conflict with the survey results would cast considerable doubt on the reliability of either to indicate what proposals Monroetown residents truly support. However, if the survey occurred long after the election, then the conflict can readily be explained by changing opinions and demographics over time. In either case, it is impossible to weigh the evidence without more specific information about percentages. The larger the percentage of Monroetown residents participating in the election, the greater the extent to which the election results would cast doubt on the survey results. By the same token, the larger the percentage of Monroetown residents shown by the survey to oppose Brown's proposal the more clearly this evidence would support the author's argument.

Finally, the argument suffers from "either-or" reasoning. Based on the fact that Monroetown residents are opposed to Brown's proposed tax cut, the author unfairly concludes that they must be in favor of Greene's proposal. However, the author overlooks the possibility that Monroetown residents are not in favor of either proposal.

In sum, the author's argument that Monroetown residents oppose Brown's proposal and are in favor of the proposals set forth by Greene is unconvincing. To strengthen the argument the author must provide clear evidence that Monroetown residents voted contrary to their own positions on the issues when they reelected Brown. To better evaluate the argument I would

need to know how much time passed between the collection of the statistics showing the national tendency cited by the author and the election. I would also need to know how much time passed between the election and the survey showing that Monroetown residents oppose Brown's proposal. Finally, I would need to know what portion of Monroetown's residents voted in the election, and what portion of these residents were shown by the survey to oppose Brown's policies.

Argument 37

The following is a memorandum from the director of personnel to the president of Get-Away Airlines.

"Since our mechanics are responsible for inspecting and maintaining our aircraft, Get-Away Airlines should pay to send them to the Quality-Care Seminar, a two-week seminar on proper maintenance procedures. I recommend this seminar because it is likely to be a wise investment, given that the automobile racing industry recently reported that the performance of its maintenance crews improved markedly after their crews had attended the seminar. These maintenance crews perform many of the same functions as do our mechanics, including refueling and repairing engines. The money we spend on sending our staff to the seminar will inevitably lead to improved maintenance and thus to greater customer satisfaction along with greater profits for our airline."

In this memorandum Get-Away Airline's personnel director asserts that Get-Away mechanics should enroll in the Quality Care Seminar on proper maintenance procedures in order to increase customer satisfaction and, in turn, profits. The director reasons that because the performance of auto-racing mechanics improves after the seminar, so will that of Get-Away's mechanics. The director's argument relies on a number of dubious assumptions and is therefore unconvincing.

First of all, the argument unfairly assumes that because the performance of auto-racing mechanics improves after the seminar so will the performance of aircraft mechanics. Common sense tells me that, even though aircraft and auto mechanics serve similar functions, aircraft repair and maintenance is far more involved than car repair and maintenance. Thus, a seminar that improves the performance of auto mechanics will not necessarily improve that of aircraft mechanics.

Secondly, the argument assumes that the performance of Get-Away mechanics is subject to improvement. However, it is entirely possible that their performance level is already very high and that the seminar will afford little or no improvement. Perhaps Get-Away's mechanics have already attended a similar seminar, or perhaps they meet higher standards than the ones imposed on auto-racing mechanics.

Thirdly, the argument concludes from the mere fact that the performance of auto-racing mechanics improved after the seminar that the seminar was responsible for this improvement. However, it is possible that some other factor, such as improved diagnostic technology or more stringent inspection requirements, was the reason for the improved performance. Without ruling out these and other such possibilities, I cannot accept the memo's final conclusion that enrolling in the seminar will improve the performance of Get-Away's mechanics as well.

Finally, the argument concludes without adequate evidence that improved performance on the part of Get-Away's mechanics will result in greater customer satisfaction and therefore greater profits for Get-Away. Admittedly, if a low performance level results in accidents, customer satisfaction and profits will in all probability decrease. Otherwise, however, improved mechanic performance will in all likelihood have no bearing on customer satisfaction; in other words, customers are unlikely to be aware of the level of performance of an aircraft's mechanics unless accidents occur.

In conclusion, the argument is unconvincing as it stands. To strengthen it, the director must provide more convincing evidence that the performance of Get-Away's mechanics will actually improve as a result of the seminar--perhaps by pointing out other airlines whose mechanics benefited from the seminar. The director must also show a strong causal nexus between improved mechanic performance and profit. In order to better evaluate the argument, I would need more information about the cost of the seminar compared to its expected benefits, and about what factors other than the seminar might have been responsible for the improved performance of auto-racing mechanics.

Argument 38

The following is a letter to the editor of an environmental magazine.

"The decline in the numbers of amphibians worldwide clearly indicates the global pollution of water and air. Two studies of amphibians in Yosemite National Park in California confirm my conclusion. In 1915 there were seven species of amphibians in the park, and there were abundant numbers of each species. However, in 1992 there were only four species of amphibians observed in the park, and the numbers of each species were drastically reduced. The decline in Yosemite has been blamed on the introduction of trout into the park's waters, which began in 1920 (trout are known to eat amphibian eggs). But the introduction of trout cannot be the real reason for the Yosemite decline because it does not explain the worldwide decline."

The author of this letter concludes that a worldwide decline in the number of amphibians is an indication, or result, of global air and water pollution. To support this assertion the author first notes a decline in amphibians in Yosemite Park between 1915 and 1992, and acknowledges that trout, which eat amphibian eggs, were introduced there in 1925. But, the author then claims that the introduction of trout cannot be the reason for the decline in Yosemite because the introduction of trout in Yosemite does not explain the worldwide decline. I find this argument logically unconvincing in three critical respects.

First, the author fails to provide any evidence to refute the strong inference that the amphibian decline in Yosemite was indeed caused by trout. Because the author provides no affirmative evidence that pollution---or some other phenomenon---was instead the reason for the decline, the author's broad assertion that a worldwide decline in amphibians indicates global pollution is entirely unconvincing.

Secondly, even if I were to concede that the introduction of trout was not the cause of Yosemite's amphibian decline, the author provides no evidence that the decline was caused by pollution--rather than some other phenomenon. Perhaps some other environmental factor was

instead the cause. Without ruling out all other possible explanations the author cannot convince me that pollution is the cause of the worldwide amphibian decline--or even the decline in Yosemite alone.

Thirdly', even if I were to concede that pollution caused Yosemite's amphibian decline, this single sample is insufficient to draw any general conclusion about the reason for a worldwide amphibian decline. It is entirely possible that the cause-and-effect relationships in Yosemite are not typical of the world in general. Without additional samples from diverse geographic locations, I cannot accept the author's sweeping generalization about the decline of amphibians and global pollution.

In sum, the scant evidence the author cites proves nothing about the reason for the general decline of amphibians worldwide; in fact, this evidence only serves to refute the author's own argument. To strengthen the argument the author should examine all changes occurring in Yosemite between 1915 and 1992 and show that air and water pollution have at least contributed to the park's amphibian decline. In any event, the author must provide data about amphibian population changes and pollution at diverse geographical locations; and this data must show a strong inverse correlation between levels of air and water pollution and amphibian populations worldwide.

Argument 39

The following is a letter to the editor of the Atticus City newspaper.

"Former Mayor Durant owes an apology to the city of Atticus. Both the damage to the River Bridge, which connects Atticus to Hartley, and the traffic problems we have long experienced on the bridge were actually caused 20 years ago by Durant. After all, he is the one who approved the construction of the bridge. If he had approved a wider and better-designed bridge, on which approximately the same amount of public money would have been spent, none of the damage or problems would have occurred. Instead, the River Bridge has deteriorated far more rapidly over the past 20 years than has the much longer Derby Bridge up the river. Even though the winters have been severe in the past several years, this is no excuse for the negligence and wastefulness of Durant."

This editorial concludes that Mayor Durant's approval of the River Bridge construction 20 years ago was the cause of current traffic and deterioration problems at the bridge. To support this conclusion, the editorial points out that a nearby bridge is not experiencing similar problems. However, the editorial relies on a number of doubtful assumptions and is therefore unconvincing.

First of all, since the bridge is 20 years old it is unfair to assign blame for recent traffic problems and deterioration to Durant or to anyone else involved in the initial bridgebuilding project. Given this time span it seems reasonable that these problems are due to ordinary wear and tear rather than to a design defect. Moreover, it is entirely possible that unforeseen developments during the last 20 years are partly responsible for the deterioration and traffic problems. For example, perhaps growth in the area's population, and therefore increased bridge traffic, has been greater than could have been anticipated 20 years ago.

Secondly, the editorial concludes without adequate evidence that if Durant had approved a

wider and better-designed bridge none of the current problems would have occurred. This amounts to fallacious reasoning. Just because a bridge that Durant approved has experienced certain problems, one cannot reasonably conclude that without that particular bridge the same problems would not have occurred.

Thirdly, the editorial relies primarily on an analogy between River Bridge and Derby Bridge, yet provides no evidence that the two bridges are similar in ways that are relevant to the argument. Even assuming weather conditions are generally the same at both locations, a variety of other factors might explain why the River Bridge problems have not occurred at the Derby Bridge. Perhaps relatively few people traverse the Derby Bridge; or perhaps the Derby Bridge is relatively new; or perhaps the comparatively long span of the Derby Bridge places less structural stress on any given point. In short, without ruling out other factors that might explain why similar problems have not occurred at the Derby bridge this argument by analogy is untenable.

Finally, the argument assumes that mere approval of the proposed bridge is tantamount to causation of traffic and deterioration problems. But the editorial fails to indicate why Durant approved the bridge in the first place. It is quite possible, for example, that it was the only feasible plan, and that Durant had no choice. Moreover, common sense tells me that deterioration and traffic problems are consequences of poor planning and engineering, and therefore more likely caused by negligence of engineers and planners than by politicians.

In conclusion, the editorial is unconvincing as it stands. To strengthen the argument, the editorial's author must provide evidence that conditions which might have contributed to the bridge's deterioration and to traffic problems were reasonably foreseeable 20 years ago, and that some other feasible bridge design would have avoided the current problems. In order to better evaluate the argument, we would need more information about what choices Durant had at the time, as well as more information about the age of the Derby bridge and about how heavily that bridge is used compared to the River bridge.

Argument 40

The following is a letter to the head of the tourism bureau on the island of Tria.

"Erosion of beach sand along the shores of Tria Island is a serious threat to our island and our tourist industry. In order to stop the erosion, we should charge people for using the beaches. Although this solution may annoy a few tourists in the short term, it will reduce the number of people using the beaches and will raise money for replenishing the sand. Replenishing the sand, as was done to protect buildings on the nearby island of Batia, will help protect buildings along our shores, thereby reducing these buildings' risk of additional damage from severe storms. And since the areas along the shore will be more attractive as a result, the beaches will be preserved and the area's tourist industry will improve over the long term."

This letter's author recommends charging fees for public access to Tria's beaches as an effective means of raising funds for the purpose of saving Tria's tourist industry. The author reasons that beach-access fees would reduce the number of beachgoers while providing revenue for replenishing beach sand needed to protect nearby buildings, thereby enhancing the area's attractiveness to tourists. To support this argument the author points out that beach

sand was replenished on the nearby island of Batia, thereby reducing the risk of storm damage to buildings there. I find the argument unconconvincing for several reasons.

First of all, the author makes certain dubious assumptions about the impact of beach access fees. On the one hand, the author ignores the possibility that charging fees might deter so many tourists that Tria would be worse off overall. On the other hand, perhaps the vast majority of Tria's tourists and residents alike would happily pay for beach access, in which case Tria's beaches would continue to be no less crowded than they are now. Under either scenario, adopting the author's proposal might harm, rather than benefit, Tria's tourist industry in the long run.

Secondly, the mere fact that on nearby Batia replenishing beach sand has served to protect shoreline buildings is scant evidence that Tria would achieve its goals by following Batia's example. Perhaps the same course of action would be ineffective on Tria due to geological differences between the two islands. Or perhaps Batia is in a far better position than Tria financially to replenish its sand on a continual basis. In short, lacking evidence that conditions on the two islands are relevantly similar, the author cannot convince me on the basis of Batia's experience that the proposed course of action would be effective in attaining Tria's goals.

Thirdly, even if replenishing Tria's beach sand is financially feasible and would protect nearby buildings, the author provides no evidence that Tria's tourist industry would be saved thereby. Perhaps Tria's tourist appeal has little to do with the beach and nearby buildings; for that matter, perhaps Tria's tourist appeal would be greater with fewer buildings along the coast. Since the author provides no firm evidence that replenishing sand and protecting nearby buildings would be more beneficial to Tria's tourist industry than allowing nature to take its course, I do not find the author's argument the least bit compelling.

In sum, the argument is unconvincing as it stands. To strengthen it the author must show that charging beach-access fees would reduce the number of beachgoers, but not to the extent of undermining the goal of raising sufficient funds to maintain an attractive coastal area. The author must also provide better evidence that replenishing sand would indeed protect nearby buildings, and that the net result would be the enhancement of Tria's tourist industry.

Argument 41

The following is from an editorial in the Midvale Observer, a local newspaper.

"Ever since the 1950's, when television sets began to appear in the average home, the rate of crimes committed by teenagers in the country of Alta has steadily increased. This increase in teenage crime parallels the increase in violence shown on television. According to several national studies, even very young children who watch a great number of television shows featuring violent scenes display more violent behavior within their home environment than do children who do not watch violent shows. Furthermore, in a survey conducted by the Observer, over 90 percent of the respondents were parents who indicated that prime-time television--programs that are shown between 7 p.m. and 9 p.m.---should show less violence. Therefore, in order to lower the rate of teenage crime in Alta, television viewers should demand that television programmers reduce the amount of violence shown during prime time."

This editorial concludes that increasingly violent television programming during prime time in

the country of Alta is responsible for the steady increase in violent crime among Alta's teenagers. To support this conclusion the editorial cites various statistical studies about violence on television. However, this evidence provides little credible support for the editorial's conclusion.

To begin with, the editorial observes a correlation between violence on television and violent teenage crime, then concludes that the former is the cause of the latter. However, the editorial fails to rule out other possible explanations for the rise in violent crime among teenagers. For example, since the 1950s it is entirely possible that Alta has seen a large growth in its population, or a deterioration of its juvenile justice system or economy. Any of these factors, or other social, political or economic factors, might lead to an increase in violent crime among teenagers. Without ruling out all other such factors it is unfair to conclude that television programs are responsible for this increase.

Next, the editorial cites studies showing that young children exposed to violent images are more likely to behave violently in the home. This evidence would support the editorial's conclusion only if teenagers and younger children react similarly to television. However, common sense tells me that young children are more likely than teenagers to mimic observed behavior. Moreover, the editorial fails to provide any evidence that this sort of mimicry ultimately develops into violent criminal behavior.

The editorial then cites the Observer survey in which "90% of the respondents were parents" who would prefer less violent television programming during prime time. However, the editorial fails to provide any information about the survey population; therefore it is impossible to determine whether the survey results apply generally to the Alta population. In addition, we are not informed how many parents were surveyed but did not respond. The greater this number, the less reliable the survey. Thus, as it stands the Observer study is statistically unreliable and lends no credible support to the editorial's conclusion.

Aside from the survey's statistical unreliability, in citing the survey the editorial assumes that parents' preferences about television programming have some bearing on whether their teenage children will commit violent crimes. However, the editorial provides no evidence to link one with the other. Moreover, the survey is relevant only to the extent that teenagers watch television during prime time. However, the editorial provides no evidence about this extent.

In conclusion, the editorial is unconvincing as it stands. To strengthen the argument, the editorial's author must rule out all other possible factors contributing to the rise in teenage violence. The author must also show that teenagers react to violent television images similarly to how younger children react to the same images, and that Alta teenagers watch a significant amount of television programming during prime time. In order to better evaluate the argument, we would need more information about the Observer survey population, and about the percentage of those surveyed who responded.

Argument 42

The following appeared in the editorial section of a health and fitness magazine.

"In a study of the effects of exercise on longevity, medical researchers tracked 500 middle-aged men over a 20-year period. The subjects represented a variety of occupations in several different parts of the country and responded to an annual survey in which they were

asked: How often and how strenuously do you exercise? Of those who responded, the men who reported that they engaged in vigorous outdoor exercise nearly every day lived longer than the men who reported that they exercised mildly only once or twice a week. Given the clear link that this study establishes between longevity and exercise, doctors should not recommend moderate exercise to their patients but should instead encourage vigorous outdoor exercise on a daily basis."

This editorial concludes that to maximize longevity people should engage in vigorous outdoor exercise on a daily basis. To support this conclusion the editorial cites a 20-year study of 500 middle-aged men in which, among subjects responding to an annual survey, those who followed this regimen lived longer, on average, than those who exercised mildly once or twice per week. A careful analysis of the study reveals several problems with the editorial's argument.

First of all, the excerpt provides no information about the number of respondents or their occupational or residential profiles. The fewer respondents, the less reliable the study's results. Also, the narrower the spectrum of occupations and geographic areas represented among respondents, the more likely that one of these two phenomena, rather than exercise, played the key role in the subjects' longevity. Moreover, once a subject dies it would be impossible for that subject to respond to the annual survey. Unless a sufficient number of subjects from diverse geographic areas and occupations responded accurately and on a regular basis, and unless accurate responses were made on behalf of deceased subjects, I simply cannot accept the editorial's conclusion.

Secondly, a 20-year time span might not be sufficient to gauge the longevity of the study's subjects; that is, until a significant number of subjects have died, it is impossible to determine with certainty the effect of exercise on the subjects' longevity as a group. Lacking information about how many deaths among the 500 subjects were reported by the end of the study, it is impossible to draw any reliable conclusion about the relationship between exercise and longevity.

Thirdly, the editorial fails to indicate how many or what percentage of the respondents engaged in vigorous outdoor exercise on a daily basis. Lacking this information, it is entirely possible that only a few subjects matched this profile and that those few subjects happened to live to an old age--due to some factor other than exercise habits. The longevity of a small number of respondents is scant evidence upon which to draw any broad conclusions about the effect of exercise on longevity.

Finally, even if we accept the reliability of the study as it relates to men, the study does not support the editorial's broad conclusion that doctors should recommend to all patients vigorous daily outdoor exercise. Since the study excluded women, it is entirely possible that a different exercise regime would maximize female longevity.

In sum, the evidence cited in this excerpt does not permit any reliable inference about the effect of exercise on longevity. To better assess the study's reliability I would need more information about the number of respondents and the number of deaths among them by the end of the 20-year period. I would also need information about the occupational and residential history of each respondent. To strengthen the argument the editorial should either limit its conclusion to men or provide evidence that its recommended exercise regimen also

maximizes longevity for women.

Argument 43

The following appeared in a letter to the editor of a local newspaper.

"Too much emphasis is placed on the development of reading skills in elementary school. Many students who are discouraged by the lonely activity of reading turn away from schoolwork merely because they are poor readers. But books recorded on audiocassette tape provide an important alternative for students at this crucial stage in their education, one the school board should not reject merely because of the expense involved. After all, many studies attest to the value of allowing students to hear books read aloud; there is even evidence that students whose parents read to them are even more likely to become able readers. Thus, hearing books on tape can only make students more eager to read and to learn. Therefore, the school board should encourage schools to buy books on tape and to use them in elementary education."

This editorial concludes that the school board should invest in audiocassettes because listening to audiocassettes makes elementary students more eager to learn and to read. To support this conclusion the editorial cites studies showing the value of listening to someone else read. However, close scrutiny of this evidence and of the editorial's line of reasoning reveals that they provide little credible support for the editorial's conclusion.

To begin with, the argument claims that for a poor reader the isolation of reading will provide a general disincentive to do schoolwork. However, the author provides no evidence to support this claim. It is just as possible that a child who has difficulty reading might excel at other subjects that do not require much reading, such as mathematics or music. Besides, this argument assumes that learning to read must be an isolated activity. Experience informs us, however, that this is not the case, especially for elementary school students who typically learn to read in a group environment.

The editorial goes on to cite studies which "attest to the value" of allowing students to hear books read aloud. However, as it stands this evidence is far too vague to support the editorial's conclusion; we are not informed whether the "value" relates specifically to reading skills. Common sense tells me that while audiocassettes can help any person learn facts and understand concepts, a skill such as reading can only be learned by practicing the skill itself.

Nor are we informed about the manner in which books were read aloud in the study; were they read directly by parents or were they recorded on audiocassettes? Absent additional information about the cited studies, these studies lend no credible support to the conclusion that audiocassettes will help elementary school students to read and to learn.

The editorial continues by claiming that listening to audiocassettes will make children better readers because when parents read aloud to their children these children become better readers. This argument by analogy is wholly unpersuasive. The latter allows for interaction between parent and child, while the former does not. The latter allows for the child to view written words as the parent reads--that is, to read while the former does not. Besides, common sense and experience tell us that audiocassettes, which provide for passive listening, are likely to serve as crutches that dissuade children from active reading--instead of

encouraging them to read.

In conclusion, the editorial is unconvincing as it stands. To strengthen the argument, the editorial's author must provide more compelling evidence that listening to audiocassettes will actually help and encourage elementary school students to read, not just to learn in general. In order to better evaluate the argument, we would need more information about whether the cited studies refer specifically to the value of audiocassettes and specifically to their value in terms of the reading and learning processes.

Argument 44

The following is taken from an advertisement placed in a weekly business magazine by the Dickens Academy.

"We distributed a survey to senior management at International Mega-Publishing, Inc. The result of the survey clearly indicates that many employees were well prepared in business knowledge and computer skills, but lacked interpersonal skills to interact gracefully with customers. International Mega-Publishing decided to improve customer satisfaction by sending their newly hired employees to our one-day seminars. Since taking advantage of our program, International Mega-Publishing has seen a sharp increase in sales, an indication that the number of their disgruntled customers has declined significantly. Your company should hire Dickens and let us turn every employee into an ambassador for your company."

This Dickens Academy ad claims that any company wanting to improve customer relations will benefit from enrolling its employees in Dickens' one-day seminars. To support this claim the ad cites Mega-Publishing's improved sales after its new employees attended Dickens' seminar as an indication of improved customer relations. As it stands the ad rests on a series of dubious assumptions, and is therefore unconvincing.

In the first place, the ad relies on the unsubstantiated assumption that the Mega employees attending the seminar are positioned to influence Mega's sales and its customer relations. Perhaps these new employees were hired for production, editorial, or personnel positions that have nothing to do with customer relations and that have only an indirect and negligible impact on sales. Without providing evidence that these new employees directly influence Mega's customer relations and sales, I cannot accept the argument that the Dickens seminar was responsible for any of Mega's sales or customer-relations improvements subsequent to the seminar.

Even if Mega's seminar attendees are involved in sales and customer relations, the ad unfairly assumes that the improvement in Mega's sales must be attributable to the seminar. Perhaps the improvement in sales was the result of increasing product demand, new pricing policies, decreased competition, or any one of a myriad of other possible developments. For that matter, perhaps Mega's new employees as a group already possessed exceptional interpersonal skills, and therefore Mega's sales and customer relations would have improved during the ensuing months regardless of the seminar. Since the ad fails to consider and rule out these and other alternative explanations for the improvements at Mega, I find the ad's claim

that the Dickens seminar should receive credit unconvincing.

Even if the Dickens seminar was responsible for improved sales and customer relations at Mega, the ad's claim that all other businesses would benefit similarly from a Dickens seminar is unjustified. It is entirely possible that the techniques and skills that participants in Dickens' seminars learn are effective for the kind of business in which Mega engages, but not for other types of businesses. Although it is possible that Dickens' training methods would be equally effective for other types of businesses, since Dickens has not provided evidence that this is the case I remain unconvinced by the ad's claim.

In sum, this ad fails to provide key evidence needed to support its claim. To strengthen that claim Dickens must show that Mega's seminar attendees – and not other employees or other occurrences – were indeed responsible for the subsequent improvement in sales, and that customer relations also improved as a result of their attending the seminar. Dickens must also provide additional success stories – about other types of businesses – to convince me Dickens' training methods will work for any business.

Argument 45

The following is a letter to the editor of a local newspaper.

"As a local merchant, I wish to support the development of a ski resort in the state park north of our township. Along with many other merchants who favor the proposal by Ski the Slopes, Incorporated, I would, of course, experience a growth in my business. But I also know how much more prosperous, not to mention lively and interesting, our community would be if tourism increased. Since the main opposition comes from a few environmentalists who do not even live in this community, I see no reason to give in to their views. The First National Bank has finally researched the project and agreed to fund it. As a result, I see no reason to delay development of the resort."*

**Environmentalists are people who advocate the preservation of the natural environment.*

This editorial concludes that a new ski resort should be developed north of town because it would attract tourism and therefore be an economic boon to local merchants. To support this claim the author, a local merchant, points out that those opposed to the project do not live in the area and that a bank has agreed to fund the project. The argument suffers from several critical flaws and is therefore unpersuasive as it stands.

First of all, the mere fact that environmentalists who oppose the development do not live in the town lends no credible support to the editorial's conclusion. In essence the author attempts to argue for one position by attacking his opponents based on potentially irrelevant considerations. We are not informed about the environmentalists' specific reasons for their position. Besides, although they do not live in the town they might operate business or own property in the area; thus, their opposition might be based on economic grounds entirely relevant to the argument.

Secondly, the editorial provides no firm evidence to justify the assertion that a new ski resort north of town will in fact benefit the town's merchants. It is entirely possible that the resort

might have the opposite effect, by drawing business away from local merchants, especially if the resort includes facilities such as apparel shops, restaurants, and grocery stores. Besides, we are not informed how far from town the resort would be located or how tourists would reach the resort. It is possible, for example, that the resort would be situated where visitors would take a route that does not pass through the town. Without ruling out these possibilities the editorial cannot justify its assertion that the resort would be a boon for local merchants.

Thirdly, the editorial's conclusion relies partly on the fact that a bank has agreed to fund the resort's development. However, this fact alone does not lend support to the assertion that local merchants will benefit. Common sense tells me that the bank agreed to fund the project because it believes the resort will be profitable, not because it believes other local merchants will benefit. In fact, a profitable ski resort might very well draw business away from local merchants.

In conclusion, the argument is untenable as it stands. To strengthen it, the editorial's author must provide clear evidence that the resort would increase business for the town's merchants rather than drawing business away from these merchants. To better evaluate the argument, we would need more information about the bank's reasons for agreeing to fund the project – especially whether the bank also lends to existing local merchants whose interests would be affected by the resort.

Argument 46

The Trash-Site Safety Council has recently conducted a statewide study of possible harmful effects of garbage sites on the health of people living near the sites. A total of five sites and 300 people were examined. The study revealed, on average, only a small statistical correlation between the proximity of homes to garbage sites and the incidence of unexplained rashes among people living in these homes. Furthermore, although it is true that people living near the largest trash sites had a slightly higher incidence of the rashes, there was otherwise no correlation between the size of the garbage sites and people's health. Therefore, the council is pleased to announce that the current system of garbage sites does not pose a significant health hazard. We see no need to restrict the size of such sites in our state or to place any restrictions on the number of homes built near the sites.

The Trash-Site Council concludes here that there is no public-health reason to restrict the size of trash sites or their proximity to homes. The Council cites its recent statewide study involving five sites and 300 people; in the study the Council observed only a small correlation between the residents' proximity to a trash site and unexplained rashes, and only a "slightly higher incidence" of rashes among people living near larger sites. The study suffers from certain statistical and other problems, which render the Council's argument based upon it unpersuasive.

First, the Council has not convinced me that the five sites in the survey are representative of trash sites in general throughout the state – in terms of their impact on the health of nearby residents. Admittedly, the study was a "statewide" one. Nevertheless, it is entirely possible that the five sites studied are characterized by certain environmental conditions that are not typical of most sites in the state and which render nearby residents either more or less susceptible to rashes and other health problems.

Secondly, the 300 people in the study are not necessarily representative of the state's general population – in terms of their susceptibility to health problems. For example, perhaps nearly all of these people are adults, while most of the health problems associated with trash sites occur among children. Or perhaps preventative health-care programs in these particular communities are unusually effective in preventing health problems. In short, lacking evidence that these 300 people are typical in terms of their vulnerability to health problems the Council cannot convince me that no statewide trash-site regulations are needed.

Thirdly, the Council's conclusions that the five sites studies pose no serious health hazards to nearby residents seems premature. Common sense informs me that a serious health problem might become apparent only after a long period of exposure to the environmental cause of the problem. The Council fails to take into account the length of time these residents have been exposed to the conditions created by the trash sites; and in any event, one "recent" study amounts to scant evidence that the sites pose no significant long-term public-health hazards.

In sum, the Council's argument is unconvincing as it stands. To strengthen it the Council must provide better evidence that the environmental conditions at the five sites studies represent conditions at trash sites throughout the state, and that the 300 people studies are representative of state residents generally in terms of vulnerability to health problems. To better assess the argument I would need more information comparing the health of the 300 people studied before and after continual exposure to the environmental conditions associated with the trash sites. I would also need to know the length of the study to determine whether it adequately accounted for latent health problems.

Argument 47

The nation of Claria covers a vast physical area. But despite wide geographic differences, many citizens are experiencing rising costs of electricity. A recent study of household electric costs in Claria found that families who cooled their houses with fans alone spent more on electricity than did families using air conditioners alone for cooling. However, those households that reported using both fans and air conditioners spent less on electricity than those households that used either fans or air conditioners alone. Thus, the citizens of Claria should follow the study's recommendation and use both air conditioners and fans in order to save money on electricity.

This argument recommends that all citizens of Claria should run fans as well as air conditioners, for the purpose of saving money on electricity. To support this recommendation, the argument's proponent points out that Claria citizens who run only fans incur higher electric costs than those who run only air conditioners, and that those who run both incur the lowest electric costs among the three groups. However, the argument depends on certain dubious assumptions about climate, electric costs, and the cited statistics. As a result, the recommendation is ill-conceived.

First, the argument relies on the assumption that climatic conditions are similar throughout all regions of Claria. Yet this is probably not the case, especially since the passage explicitly

characterizes Claria as vast and widely diverse geographically. It is entirely possible that only fans are used in certain regions because the climate in these regions is comparatively cold year-round, and that electric heating costs are so high that they result in the highest overall electric costs in the country. If this is the case, implementing the proponent's suggestion would result in higher electric costs for citizens in these regions. Or perhaps people who run both fans and air conditioners live in regions where there is less need for artificial cooling. This would explain why total electric costs in these regions are comparatively low. If this is the case, then implementing the proponent's suggestion might still result in higher electric costs for citizens in other regions.

Secondly, the recommendation depends on the assumption that the cost of electricity is the same for all three groups. However, it is possible that people who use both fans and air conditioners incur the lowest total electric costs among the three groups simply because these people pay the least per unit of electricity. The fact that Claria is geographically diverse lends support to this notion; people who use both fans and air conditioners are likely to live in the same climatic region, and people in the same region are more likely to be subject to the same electricity usage rates.

Thirdly, the argument provides insufficient information about the study on which it relies. If the results were based on only one warm season then the argument would be less persuasive than if the results were based on more than one warm season; in other words, the larger the statistical sample the more reliable the results.

In conclusion, the recommendation for using both cooling methods is dubious at best. To bolster it, the argument's proponent must show that climatic conditions are similar in all regions. The proponent must also show that rates charged for electricity are similar in all regions. Finally, in order to better evaluate the extent to which the cited study supports the recommendation we would need more statistical information about the study's time span.

Argument 48

As people grow older, an enzyme known as PEP increasingly breaks down the neuropeptide chemicals involved in learning and memory. But now, researchers have found compounds that prevent PEP from breaking neuropeptides apart. In tests, these compounds almost completely restored lost memory in rats. The use of these compounds should be extended to students who have poor memory and difficulty in concentrating-and therefore serious problems in school performance. Science finally has a solution for problems neither parents nor teachers could solve.

This argument concludes that certain compounds should be administered to students with poor memory and concentration to improve their performance in school. The argument cites an experiment involving rats in which the same compounds prevented the enzyme PEP from breaking down chemicals involved in learning and memory. The argument suffers from several flaws, which render it unconvincing.

A threshold problem with the argument is that it assumes that what improves memory and learning in rats will also improve memory and learning in humans. Although this is entirely possible, the argument provides no evidence to support this assumption. Without such

evidence the argument can be rejected out of hand.

A second problem involves the fact that PEP increasingly breaks down the chemicals needed for learning and memory as humans age--as the argument points out. Yet the argument seems to claim that inhibiting PEP will be effective in improving learning and memory in young people. (The argument refers to students' "parents," implying that proposed human subjects are young people rather than adults.) Thus the effectiveness of the compounds is likely to be far less significant than it would be for older people.

A third problem with the argument is that it assumes that learning and memory are the only significant factors affecting performance in school. Common sense and experience tells us this is not the case, and that a variety of other factors, such as motivation and natural ability, also play major roles. Thus the compounds might very well turn out to be largely ineffective.

A final problem with the argument is that it asserts that the compounds will improve concentration, yet it makes no claim that the same compounds improved concentration in rats----only that they improved the rats' learning and memory. Thus the argument's conclusion is indefensible to this extent.

In sum, the argument is weak on several grounds. To strengthen it the argument's proponent must provide clear evidence that the same compounds that improved learning and memory in rats will do so in young humans. Moreover, the argument's proponent must show that poor academic performance is due primarily to learning and memory problems, rather than to poor concentration, motivation, or other factors.

Argument 49

In a study of reading habits of Leeville citizens conducted by the University of Leeville, most respondents said they preferred literary classics as reading material. However, a follow-up study conducted by the same researchers found that the type of book most frequently checked out of each of the public libraries in Leeville was the mystery novel. Therefore, it can be concluded that the respondents in the first study had misrepresented their reading habits.

This argument concludes that in a certain study about reading habits Leeville citizens misrepresented their true reading habits. To justify this conclusion, the argument points out an apparent discrepancy between their representations and the results of a follow-up study showing that a different type of book is the one most frequently checked out from Leeville's public libraries. However, the argument fails to account for several other possible explanations for this apparent discrepancy.

First of all, the argument does not indicate how much time passed between the two studies. During a sufficiently long interim period the demographic makeup of Leeville might have changed, or the reading habits of the first study's respondents might have changed. In other words, the longer the time between studies the less reliable the conclusion that respondents in the first study misrepresented their reading habits.

Secondly, the argument fails to account for the possibility that the respondents in the first study constitute a different population than public library patrons. Admittedly, both groups are comprised of Leeville citizens. However, it is entirely possible that more highly educated citizens who frequent the University library rather than public libraries, or who purchase books

rather than borrow them, are the ones who responded to the first study.

Thirdly, the argument fails to account for the possibility that literary classics, the book type that the first study's respondents indicated they preferred, are not readily available at Leeville's public libraries---or at least not as readily available as mystery novels. Experience informs me that this is likely, because mystery novels are in greater supply and are cheaper for libraries to acquire than literary classics. If this is the case, it provides an alternative explanation for the fact that more mystery novels than literary classics are checked out from Leeville's public libraries.

Finally, the reliability of the first study rests on its statistical integrity. The argument fails to indicate what portion of the people surveyed actually responded; the smaller this portion, the less reliable the results. Nor does the argument indicate how many people were surveyed, or whether the sample was representative of Leeville's general population. Again, the smaller the sample, the less reliable the results.

In conclusion, the assertion that respondents in the first study misrepresented their reading habits is untenable, in light of a variety of alternative explanations for the apparent discrepancy between the two studies. To strengthen the argument, its proponent must show that the respondents in the first study are representative of Leeville citizens generally, and that both groups are equally likely to check out books from Leeville's public libraries. To better evaluate the argument, we would need to know the length of time between the two studies, and whether any significant demographic changes occurred during this time. We would also need to know the availability of literary classics compared to mystery novels at Leeville's public libraries.

Argument 50

A recent study shows that people living on the continent of North America suffer 9 times more chronic fatigue and 31 times more chronic depression than do people living on the continent of Asia. Interestingly, Asians, on average, eat 20 grams of soy per day, whereas North Americans eat virtually none. It turns out that soy contains phytochemicals called isoflavones, which have been found to possess disease-preventing properties. Thus, North Americans should consider eating soy on a regular basis as a way of preventing fatigue and depression.

This argument concludes that North Americans should eat soy on a regular basis as a means of preventing fatigue and depression. The argument cites a recent study showing that North Americans suffer far greater from these problems than people in Asia do, that Asians eat soy regularly whereas North Americans do not, and that soy is known to possess disease-preventing properties. The argument relies on several doubtful assumptions, and is therefore unconvincing.

First, the argument assumes that depression and fatigue are just as readily diagnosed in Asia as in North America. However, it is entirely possible that Asians suffering from these problems do not complain about them or otherwise admit them. For that matter, perhaps Asian medical doctors view certain symptoms which North Americans would consider signs of fatigue and depression as signs of some other problem.

Secondly, the argument assumes that the difference in soy consumption is the only possible explanation for this disparity in the occurrence of fatigue and depression. Yet the argument

fails to substantiate this assumption. Common sense informs me that any one of a myriad of other differences---environmental, dietary, and genetic---might explain why North Americans suffer from these problems to a greater extent than Asians do. Without considering and ruling out alternative reasons for this disparity, the argument's conclusion that soy is the key to the disparity is indefensible.

Thirdly, the argument unfairly infers from the fact that soy is known to possess disease preventing properties that these properties help prevent fatigue and depression specifically. The argument supplies no evidence to substantiate this assumption. Moreover, whether fatigue and depression are appropriately classified as diseases in the first place is questionable.

Finally, even if the properties in soy can be shown to prevent fatigue and depression, the argument unfairly assumes that eating soy is the only means of ingesting the key substances. It is entirely possible that these same properties are found in other forms, and therefore that North Americans need not increase soy consumption to help prevent fatigue and depression.

In sum, the argument is dubious at best. Before I can accept its conclusion, the argument's proponent must provide better evidence that people in Asia in fact suffer less from fatigue and depression than North Americans do. To better evaluate the argument I would need to know what kinds of diseases the properties of soy are known to help prevent, and whether they relate at all to fatigue and depression. I would also need to know what other foods contain the same properties as soy--to determine what alternatives, if any, are available for preventing fatigue and depression.

Argument 51

The following is taken from the editorial section of the local newspaper in Rockingham.

"In order to save a considerable amount of money, Rockingham's century-old town hall should be torn down and replaced by the larger and more energy-efficient building that some citizens have proposed. The old town hall is too small to comfortably accommodate the number of people who are employed by the town. In addition, it is very costly to heat the old hall in winter and cool it in summer. The new, larger building would be more energy efficient, costing less per square foot to heat and cool than the old hall. Furthermore, it would be possible to rent out some of the space in the new building, thereby generating income for the town of Rockingham."

This editorial concludes that the town of Rockingham would save money by replacing its old town hall with a larger, more energy-efficient one. To support the argument the editorial's author cites the need for a larger building to comfortably accommodate employees, and the fact that the proposed building would cost less per cubic foot to heat and cool than the current building would. However, the editorial is unconvincing for several reasons.

First of all, even though it would cost less per cubic foot to heat and cool the new building, because the new building would be larger the total cooling and heating costs might actually be greater than they are now. Add to this possibility the initial cost of replacing the structure, and in all likelihood the new building would not save money for the town. Besides, the argument ignores other, potentially less expensive, means of reducing current heating and cooling

costs—for example, retrofitting the building with a new climate control system.

Secondly, the editorial relies partly on the fact that the current building cannot comfortably accommodate all the people who work in it. However, this fact in itself is irrelevant to whether the town would save money by replacing the building. Besides, the editorial ignores other, potentially less expensive, solutions to the current comfort problem—for example, adding an annex to the current structure.

Thirdly, the editorial relies partly on the assertion that the town could generate income by renting out part of a larger new building. However, the author equivocates here—on the one hand claiming that a larger building is needed because the old one is too small to accommodate employees, while on the other hand proposing that the additional space not be used to solve this problem. The use of conflicting evidence to support the same conclusion renders the argument wholly unpersuasive.

In conclusion, the editorial is unconvincing as it stands. To strengthen the assertion that a new building would save the town money, the editorial's author must provide a detailed analysis comparing the cost of cooling and heating the current hall to the anticipated cost of cooling and heating the new hall. In this analysis, the author must factor in the initial cost of replacing the old hall, as well as the additional rental income that the larger hall might generate. Finally, the author must choose between two competing objectives: creating a more spacious environment for current employees or creating a larger hall for the purpose of generating rental income.

Argument 52

Claitown University needs both affordable housing for its students and a way to fund the building of such housing. The best solution to this problem is to commission a famous architect known for experimental and futuristic buildings. It is common knowledge that tourists are willing to pay money to tour some of the architect's buildings, so it can be expected that tourists will want to visit this new building. The income from the fees charged to tourists will soon cover the building costs. Furthermore, such a building will attract new students as well as donations from alumni. And even though such a building will be much larger than our current need for student housing, part of the building can be used as office space.

This argument recommends commissioning a famous architect known for futuristic and experimental designs as the best means of providing new affordable housing for Claitown University students. The argument's line of reasoning is that the building will attract paying tourists, new students, and donations from alumni—all of which will help raise the funds needed for the project. However, the argument is problematic in several critical respects.

First of all, a famous architect might charge a substantial fee for the project, in which case the funds raised by charging tourists and through alumni donations might be offset to the point of rendering the entire project unfeasible financially. The argument's proponent must address this issue before I can accept the argument's conclusion.

Secondly, the argument relies on the tenuous assumption that tourists will be interested in paying for tours of a building used for a purpose as mundane as student housing. It is entirely possible that once the building is in use, tourists will not be willing to pay for tours. Besides,

perhaps the appeal of this architect's buildings lies primarily in their exteriors, in which case tourists would be able to appreciate the new building's salient architectural features without paying for a tour. In either case, the argument's claim that the architect's notoriety and the building itself will generate the funds needed for its construction would be dubious at best.

Thirdly, the argument fails to explain how the University will be able to pay for construction when it will not begin to receive the revenue it needs until after construction is complete. Unless the architect and contractors agree to be paid later, the argument's proponent cannot convince me that the recommended course of action will achieve the University's goals.

Finally, the argument assumes without justification that a futuristic or experimental building will attract alumni donations and students. While this might be true, it is also possible that instead the University's alumni and students stronger prefer the architectural status quo at their campus; in fact, the appeal of the campus' predominant architectural styles might be one of the key attractions for students and alumni dollars. Thus I would need some evidence to substantiate this assumption before I can accept the argument's conclusion.

In sum, as it stands the argument is not well supported. To strengthen it, the argument's proponent must supply dear evidence--perhaps involving other college buildings designed by famous architects--that tourists will be willing to pay for tours of the building once it is completed and is in use as student housing. To better assess the argument I would need detailed and realistic financial projections, accounting for the architect's fees, to determine the project's financial feasibility. I would also need to know--perhaps by way of a reliable survey--the extent to which students and alumni would be likely to support the project.

Argument 53

The following appeared in a business magazine.

"As a result of numerous consumer complaints of dizziness and nausea, Promofoods requested that eight million cans of tuna be returned for testing last year. Promofoods concluded that the cans did not, after all, contain chemicals that posed a health risk. This conclusion is based on the fact that the chemists from Promofoods tested samples of the recalled cans and found that, of the eight chemicals most commonly blamed for causing symptoms of dizziness and nausea, five were not found in any of the tested cans. The chemists did find that the three remaining suspected chemicals are naturally found in all other kinds of canned foods."

This magazine article concludes that the 8 million cans of tuna Promofoods recalled, due to complaints about nausea and dizziness, do not after all contain any chemicals that pose a health risk. To support this conclusion the author cites the fact that five of eight chemicals commonly causing these symptoms were not found in the recalled cans, while the other three also occur naturally in other canned foods. For several reasons, this evidence lends little credible support to the author's conclusion.

To begin with, the author relies partly on the fact that, although three of the eight chemicals most commonly blamed for nausea and dizziness appeared in Promofoods' recalled tuna, these chemicals also occur naturally in other canned foods. However, this fact alone lends no support to the author's conclusion, for two reasons. First, the author might be ignoring an

important distinction between "naturally occurring" chemicals and those not occurring naturally. It is entirely possible that these three chemicals do not occur naturally in Promofoods' tuna, and that it is for this reason that the chemicals cause nausea and dizziness. Secondly, it is entirely possible that even when they occur naturally these chemicals cause the same symptoms. Unless the author rules out both possibilities, he cannot reliably conclude that the recalled tuna would not cause these symptoms.

Another problem with the argument is that the author's conclusion is too broad. Based on evidence about certain chemicals that might cause two particular health-related symptoms, the author concludes that the recalled tuna contains no chemicals that pose a health risk. However, the author fails to account for the myriad of other possible health risks that the recalled tuna might potentially pose. Without ruling out all other such risks, the author cannot justifiably reach his conclusion.

A third problem with the argument involves that fact that the eight particular chemicals with which the test was concerned are only the eight "most commonly blamed" for nausea and dizziness. It is entirely possible that other chemicals might also cause these symptoms, and that one or more of these other chemicals actually caused the symptoms. Without ruling out this possibility, the author cannot justifiably conclude that the recalled tuna would not cause nausea and dizziness.

A final problem with the argument involves the testing procedure itself. The author provides no information about the number of recalled cans tested or the selection method used. Unless the number of cans is a sufficiently large sample and is statistically representative of all the recalled cans, the study's results are not statistically reliable.

In conclusion, the article is unconvincing as it stands. To strengthen the assertion that the recalled tuna would not cause nausea and dizziness, the author must provide evidence that the three chemicals mentioned that occur naturally in other canned foods also appear naturally in Promofoods' tuna. The author must also provide evidence that ingesting other canned foods containing these three chemicals does not cause these symptoms. To better evaluate the argument, we would need to know whether the sample used in the tests was statistically significant and representative of all the recalled tuna. We would also need to know what other chemicals in the recalled tuna might pose any health risk at all.

Argument 54

The following appeared in a local newspaper.

"People should not be misled by the advertising competition between Coldex and Cold-Away, both popular over-the-counter cold medications that anyone can purchase without a doctor's prescription. Each brand is accusing the other of causing some well-known, unwanted side effect: Coldex is known to contribute to existing high blood pressure and Cold-Away is known to cause drowsiness. But the choice should be clear for most health-conscious people: Cold-Away has been on the market for much longer and is used by more hospitals than is Coldex. Clearly, Cold-Away is more effective."

This argument concludes that Cold-Away is a more effective non-prescription cold medication than Coldex. The argument points out that each one has a distinct unwanted side

effect: Cold-Away causes drowsiness, while Coldex contributes to existing high blood pressure. To support its conclusion, the argument points out that Cold-Away has been on the market considerably longer, and that it is used by more hospitals than Coldex. I find the argument unconvincing for three reasons.

First, the mere fact that Cold-Away has been on the market longer than Coldex is scant evidence of their comparative effectiveness. Well-established products are not necessarily better than newer ones. Moreover, in my observation newer medicines often make use of newer pharmaceutical developments than competing products; thus it can be argued that since Cold-Away has been on the market longer than Coldex it is likely to be less, not more, effective than Coldex.

Secondly, the argument unfairly assumes that hospitals prefer Cold-Away because of its comparative effectiveness as a cold medication. It is entirely possible that hospitals do not consider drowsiness an undesirable side effect for their patients. For that matter, perhaps hospitals use Cold-Away primarily for this effect rather than as a cold medication.

A third problem with the argument involves Coldex's side effect: high blood pressure. Admittedly, people who already have a serious blood pressure problem would probably be well advised to use Cold-Away instead. However, only those people are susceptible to this side effect. Thus for all other people—the vast majority of cold-medicine users—Coldex's side effect is irrelevant in choosing between the two products. Moreover, if a person without high blood pressure wishes to avoid drowsiness, Coldex would seem to be the preferable medication.

In sum, the argument is unconvincing as it stands. To strengthen it, the argument's proponent must provide dear evidence that hospitals prefer Cold-Away because of its effectiveness in treating colds. To better assess the argument, I would need better evidence comparing the effectiveness of the two products—perhaps through clinical studies or reliable surveys of the general population.

Argument 55

A folk remedy for insomnia, the scent in lavender flowers, has now been proved effective. In a recent study, 30 volunteers with chronic insomnia slept each night for three weeks on lavender-scented pillows in a controlled room where their sleep was monitored. During the first week, volunteers continued to take their usual sleeping medication. They slept soundly but awakened feeling tired. During the second week, the volunteers discontinued their medication. As a result, they slept less soundly than the previous week and felt even more tired. During the third week, the volunteers slept longer and more soundly than in the previous two weeks. This shows that over a short period of time lavender cures insomnia.*

**A folk remedy is usually a plant-based form of treatment common to traditional forms of medicine, ones that developed before the advent of modern medical services and technology.*

The speaker concludes that the scent of lavender provides an effective short-term cure for insomnia. To support this conclusion the speaker cites a three-week experiment in which researchers monitored the apparent effects of lavender on 30 insomniacs, who slept on lavender-scented pillows each night of the experiment. The speaker's account of the

experiment reveals several critical problems with it. Together, these problems serve to undermine the speaker's argument.

A threshold problem involves the definition of insomnia. The speaker fails to define this critical term. If insomnia is defined as an inability to fall asleep, then how soundly or long a person sleeps, or how tired a person feels after sleep, is irrelevant to whether the person suffers from insomnia. In short, without a clear definition of insomnia it is impossible to assess the strength of the argument.

Another fundamental problem is that the speaker omits to inform us about the test subjects' sleep patterns just prior to the experiment. It is impossible to conclude with any confidence that the subjects benefited from sleeping on lavender-scented pillows without comparing how they slept with the pillows to how they sleep without them.

Yet another problem involves the fact that subjects slept more soundly and awakened less tired the first week than the second, and that they used their regular sleep medication the first week but not the second. This evidence tends to show only that the subjects' other sleep medications were effective; it proves nothing about the effectiveness of lavender.

A fourth problem involves the speaker's account of the experiment's third week, during which the speaker reports only that the subjects slept longer and more soundly than in the previous two weeks. We are not informed whether the subjects took any medication during the third week. Assuming they did not, any one of a variety of factors other than the lavender-scented pillows might explain the third week's results. Perhaps the subjects were simply making up for sleep they lost the previous week when they discontinued their regular medication. Or perhaps the subjects were finally becoming accustomed to the lavender-scented pillows, which actually disturbed sleep initially. In short, without ruling out other explanations for the third week's results, the speaker cannot confidently identify what caused the subjects to sleep longer and more soundly that week.

Two final problems with the argument involve the experimental process. The experiment's results are reliable only if all other factors that might affect sleep patterns remained constant during the three-week period, and if the number of experimental subjects is statistically significant. Without evidence of the experiment's methodological and statistical reliability, the speaker's conclusion is unjustifiable.

In conclusion, the argument is unconvincing as it stands. To strengthen the assertion that lavender-scented pillows provide a short-term cure for insomnia, the author must provide evidence that the test subjects' insomnia was worse just prior to the experiment than at the conclusion of the experiment, and that the number of subjects is statistically sufficient to warrant the conclusion. To better assess the argument, we would need a clear definition of insomnia, as well as more information about whether the researchers conducted the experiment in a controlled environment.

Argument 56

Typically, as people age, their bone mass decreases, making them more vulnerable to bone fractures. A recent study concludes that the most effective way to reduce the risk of fractures in later life is to take twice the recommended dose of vitamin D and calcium daily. The three-year study followed a group of French women in their eighties who were nursing-home residents.

The women were given daily supplements of twice the recommended dose of vitamin D and calcium. In addition, the women participated in a light weightlifting program. After three years, these women showed a much lower rate of hip fractures than is average for their age.

This argument concludes that elderly people should take twice the recommended dosage of vitamin D and calcium in order to minimize loss of bone mass, and therefore the risk of bone fractures. To support this conclusion the argument's proponent cites a 3-year study involving a group of French female nursing-home residents in their eighties. After three years of weight training, along with taking the indicated dosages of vitamin D and calcium, these women as a group were observed to suffer far fewer hip fractures than is average for their age. This argument suffers from several critical flaws and is therefore unconvincing.

First and foremost, the argument assumes unfairly that the additional vitamin D and calcium, rather than the weight training, were responsible for the lower-than-average incidence of hip fractures among this group of women. It is entirely possible that the weight training, not the supplements, was responsible for preserving bone mass. Also, weight training is known to improve muscular strength, coordination, and flexibility, which in turn might reduce the likelihood of accidental falls and other injuries. Thus the weight training could also have been responsible in this respect.

The argument also overlooks many other possible explanations for the comparatively low incidence of hip fractures among this group of women. For example, perhaps these women were more physically fit than average to begin with. Or perhaps the nursing homes where the group resided provided special safeguards against accidental injuries that are not ordinarily available for most elderly people. Or perhaps French people are less susceptible to bone loss than other people are--due perhaps to cultural dietary habits or genetic predisposition. For that matter, perhaps women are genetically less disposed to lose bone mass than men are. Any of these scenarios, if true, would undermine the conclusion that the lower incidence of hip fractures was attributable to the additional vitamin D and calcium.

Finally, even if we accept that taking twice the recommended dosages of vitamin D and calcium significantly reduces the risk of bone fractures for older people, the argument ignores the possibility that some other dosage--perhaps three times the recommended dosage--would reduce the risk of bone fractures even more. Without ruling out this possibility, the argument's proponent cannot justifiably conclude that twice the recommended dosage provides the optimal reduction of risk.

In sum, this is a weak argument. To strengthen it, the argument's proponent must consider and eliminate all other possible explanations for the comparatively low incidence of hip fractures among this group of women. The proponent must also provide evidence that this group of women are representative of older people generally in ways that might affect the incidence of hip fractures---aside from their vitamin D and calcium intake. To better assess the argument, I would need more information about other means of preventing bone loss in older adults, and whether such other means are more or less effective than taking twice the recommended dosage of vitamin D and calcium.

Argument 57

The following appeared in a letter from a department chairperson to the president of Pierce

University.

"Some studies conducted by Bronston College, which is also located in a small town, reveal that both male and female professors are happier living in small towns when their spouses are also employed in the same geographic area. Therefore, in the interest of attracting the most gifted teachers and researchers to our faculty and improving the morale of our entire staff, we at Pierce University should offer employment to the spouse of each new faculty member we hire. Although we cannot expect all offers to be accepted or to be viewed as an ideal job offer, the money invested in this effort will clearly be well spent because, if their spouses have a chance of employment, new professors will be more likely to accept our offers."

In this letter, a department chairperson at Pierce University recommends that Pierce offer jobs to spouses of new faculty in order to attract the most gifted teachers and researchers. To support this recommendation, the chairperson cites certain Bronston University studies, which concluded that in small towns male as well as female faculty are happier when their spouses are employed in the same geographic area. However, the chairperson's argument relies on certain unsubstantiated assumptions about the similarity between Pierce faculty and the faculty involved in the Bronston study, and about how the most gifted teachers and researchers choose among jobs in the first place.

A threshold problem with the argument involves the Bronston studies themselves. The letter provides no information about the faculty in the study--specifically, whether they were representative of college faculty in general, and of potential Pierce faculty in particular. For example, if the study involved only Bronston faculty, then it would be less reliable than if it involved Pierce faculty as well. In any case, the smaller and more biased the survey's sample, the less reliable it is for the purpose of drawing any conclusions about how Pierce might attract new faculty.

Secondly, the argument relies on the assumption that faculty whose spouses work for the same employer are just as happy as faculty whose spouses work for other employers.

However, since the letter fails to substantiate this assumption it is entirely possible that the spouses involved in the Bronston study and who worked in the same geographic area attribute their happiness to the fact that they work for different employers. If so, then the chairperson's recommendation that Pierce try to entice gifted teachers and researchers by offering jobs to their spouses as well would seem ill-advised.

Thirdly, the argument assumes that jobs for faculty spouses at Pierce would contribute to the happiness of Pierce faculty to at least as great an extent as the jobs in the geographical areas where the study's subjects resided. However, the letter provides no evidence to substantiate this assumption. Thus it is entirely possible that jobs in the areas where the study's faculty resided are higher-paying, offer better benefits, or otherwise contribute to the happiness of employees' spouses--college faculty--more so than a typical staff position at Pierce. In fact, the letter suggests that this might be the case. By admitting that Pierce job offers are not ideal, the letter implies that faculty candidates and their spouses might find a more attractive dual-employment package elsewhere.

Finally, the argument assumes that gifted teachers and researchers consider employment for spouses a key factor in choosing among job offers. However, the letter provides no

evidence that this is the case. In fact, it is entirely possible that the faculty in the Bronston study are not exceptional teachers and researchers and therefore do not have as many job options as the kind of faculty Pierce hopes to attract. If this is the case, Pierce cannot justifiably expect the most exceptional teachers to accept positions at Pierce just because Pierce provides employment to faculty spouses.

In conclusion, the letter is unpersuasive as it stands. To strengthen the argument, the chairperson must show that jobs for spouses of faculty involved in the Bronston study are no more attractive than non-faculty jobs at Pierce. The chairperson must also provide clear evidence that the most gifted teachers and researchers find the sort of benefit that this letter proposes to be significantly attractive in choosing among job offers. Finally, to better assess the argument we would need more information about the faculty involved in the Bronston studies, so that we can determine the study's relevance to Pierce, as well as its statistical reliability.

Argument 58

For the past five years, consumers in California have been willing to pay twice as much for oysters from the northeastern Atlantic Coast as for Gulf Coast oysters. This trend began shortly after harmful bacteria were found in a few raw Gulf Coast oysters. But scientists have now devised a process for killing the bacteria. Once consumers are made aware of the increased safety of Gulf Coast oysters, they are likely to be willing to pay as much for Gulf Coast as for northeastern Atlantic Coast oysters, and greater profits for Gulf Coast oyster producers will follow.

This argument points out that, ever since harmful bacteria were found in a few Gulf Coast oysters five years ago, California consumers have been willing to pay twice as much for northeastern Atlantic oysters as for Gulf oysters. The argument then notes that scientists have now developed a process for killing these bacteria. The argument concludes that once consumers become aware of this fact they will be willing to pay as much for these oysters as for Atlantic oysters, and that profits for Gulf oyster producers will thereby increase. The argument is flawed in three critical respects.

First, the argument assumes that the bacteria discovery is the reason for California consumers' unwillingness to pay as much for Gulf shrimp during the past five years. However, this is not necessarily so. Perhaps regional culinary tastes shifted during the last five years, and perhaps Atlantic oysters have a distinct taste, texture, size, or other quality that has made them more popular among California consumers. Since the argument fails to rule out this and other alternative explanations for the willingness of California consumers to pay more for Atlantic oysters, the argument's conclusion is unwarranted.

Secondly, the argument assumes too hastily that consumer awareness of the process that kills the bacteria will necessarily result in the behavior that the argument predicts. Perhaps after five years of favoring Atlantic oysters, consumer oyster tastes and habits have become so well entrenched that consumers will continue to favor Atlantic oysters and will happily pay a premium for them. Moreover, in my observation consumers often act unpredictably and irrationally, and therefore any prediction about consumer preferences is dubious at best.

Besides, it is entirely possible that Gulf oyster producers will be unwilling to employ the new bacteria-killing process; if so, and if consumers are aware of this fact, then in all likelihood consumers will continue to favor Atlantic oysters.

Thirdly, even if consumers begin paying as much for Gulf oysters once they become aware of the bacteria-killing process, the argument's conclusion that Gulf oyster producers will enjoy increased profits as a result is unwarranted. Profit is a factor of not only revenue but also costs. It is entirely possible that the costs of employing this new process for killing bacteria, or other costs associated with producing Gulf oysters, will offset additional revenue. Besides, a myriad of other possible occurrences, such as unfavorable regional weather or economic conditions, might prevent the Gulf oyster producers from being as profitable in the foreseeable future as the argument predicts.

In sum, the argument is unpersuasive as it stands. To strengthen it the argument's proponent must consider and rule out all other possible explanations for the willingness of California consumers to pay a premium for Atlantic oysters, and must convince me that with consumer awareness of the bacteria-killing process Gulf oysters will become just as desirable as Atlantic oysters. To better assess the argument's claim that profits for Gulf oyster producers will increase as an end result, I would need to know whether Gulf oyster producers will incur the expenses involved in killing the bacteria and, if so, the extent to which these expenses will impinge on the producers' profits.

Argument 59

The following appeared in a memo from the marketing director of "Bargain Brand" Cereals.

One year ago we introduced our first product, "Bargain Brand" breakfast cereal. Our very low prices quickly drew many customers away from the top-selling cereal companies. Although the companies producing the top brands have since tried to compete with us by lowering their prices, and although several plan to introduce their own budget brands, not once have we needed to raise our prices to continue making a profit. Given our success selling cereal, Bargain Brand should now expand its business and begin marketing other low-priced food products as quickly as possible.

In this memo the marketing director of Bargain Brand Cereal claims that the company will continue to make a profit from sales of its cereal, and therefore that the company should expand its bargain-priced product line to include other foods as well. To support these assertions, the memo points out that Bargain Brand is still earning a profit from its cereal sales, despite the fact that major competitors have lowered their cereal prices and plan to offer bargain-priced cereal brands. On several grounds, this evidence lends little credible support for the memo's conclusions.

First of all, the mere fact that Bargain Brand is still earning a profit from its cereal sales is not the key in determining whether its competitors are succeeding. The key instead is the extent to which Bargain Brand profits have diminished since other companies lowered their cereal prices. It is entirely possible that Bargain Brand has been less profitable since its competitors lowered their cereal prices, and that given a little more time these competitors will draw enough additional sales away from Bargain Brand to render it unprofitable. The fact that the

other companies offer the "top brands" is strong evidence that these companies can survive a prolonged price war and ultimately prevail over Bargain Brand.

Secondly, the memo states that several major competitors plan to offer their own special bargain brands to compete directly with Bargain Brand. Yet the memo fails to account for this fact in concluding that Bargain Brand will continue to be profitable. In all likelihood, after the introduction of competing brands Bargain Brand's profits will diminish even further. Without providing evidence that this will not occur, the director cannot convincingly conclude that Bargain Brand will continue to profit from its cereal sales.

Thirdly, based on the fact that Bargain Brand continues to profit from cereal sales, the memo concludes that Bargain Brand should expand its product line to include other food products. Yet the memo provides no evidence that Bargain Brand is likely to be profitable in other markets. Common sense suggests the contrary--that Bargain Brand is unlikely to succeed in markets in which it has no previous experience or exposure. Without providing evidence as to how Bargain Brand would overcome natural barriers to entry into other markets, the director's conclusion is weak at best.

In conclusion, the memo is unpersuasive as it stands. To strengthen the argument, the director must show that Bargain Brand will continue to profit from cereal sales even after its major competitors introduce their own bargain brands. To better assess the director's conclusion that Bargain Brand should expand its line of bargain-priced foods, we would need more information about the extent of competition and other barriers to entry in those other markets.

Argument 60

The Mozart School of Music should obviously be the first choice of any music student aware of its reputation. First of all, the Mozart School stresses intensive practice and training, so that students typically begin their training at a very young age. Second, the school has ample facilities and up-to-date professional equipment, and its faculty includes some of the most distinguished music teachers in the world. Finally, many Mozart graduates have gone on to be the best known and most highly paid musicians in the nation.

This argument concludes that the Mozart School should be the first choice of any music student aware of its reputation for (1) its intensive practice requirements for students of all ages, (2) its outstanding facilities, up-to-date equipment, and distinguished faculty, and (3) the accomplishments of its graduates. Although the evidence provided strongly suggests that this school would be an excellent choice for certain prospective students, the conclusion that it should be the first choice for any prospective music student is indefensible in three respects.

First, the fact that the Mozart School is known for its intensive practice and training regimen for even the youngest students suggests that the school might be suitable for certain child proteges, but perhaps not for children for whom a more balanced education would be more prudent. For that matter, many older students with other interests and activities would no doubt find the intensity and time commitment that the Mozart program requires unfeasible or undesirable.

Secondly, in all likelihood the outstanding facilities, equipment, and faculty come at a

considerable price to students--in the form of high tuition. Thus the argument seems to assume that for all prospective music students money is no object when it comes to musical training. Yet common sense informs me that many students would place a higher priority on affordable training than on the specific features that the argument touts.

Thirdly, although the fact that many famous performers and highly-paid performers are among the school's graduates might be relevant to students with the requisite natural talent and motivation to attain these lofty goals, for others this feature would not be relevant. For example, some prospective students would no doubt wish to focus their study on musicology, theory, composition, or even performance--not to become famous or highly-paid performers but rather to prepare for careers in music education. Other prospective students might not aspire to make music their eventual vocation at all. Thus some other school--one with a less rigorous performance-oriented approach--might be a better choice for less-gifted students and for those with other aspirations.

In sum, the Mozart School's features do not justify the argument's sweeping conclusion that the school should be the first choice for every music student. To strengthen the argument, its proponent must show at the very least that the school would be affordable to any prospective student. To better assess the argument I would need more information about what non-performance music programs the school offers, and whether Mozart students of various ages have any choice in how intensely they are required to practice and train.

Argument 61

The following is a memorandum issued by the publisher of a newsmagazine, Newsbeat, in the country of Dinn.

"Our poorest-selling magazine issues over the past three years were those that featured international news stories on their front covers. Over the same period, competing news-magazines have significantly decreased the number of cover stories that they devote to international news. Moreover, the cost of maintaining our foreign bureaus to report on international news is increasing. Therefore, we should decrease our emphasis on international news and refrain from displaying such stories on our magazine covers."

In this memo the publisher of the magazine Newsbeat claims that to maximize sales the magazine should decrease its emphasis on international news and refrain from displaying such stories on its covers. To support this conclusion the publisher points out that the magazine's poorest-selling issues during the last three years have been those with cover stories about international events, and that during this same period the number of international cover stories appearing in other news magazines has decreased. On several grounds, this evidence lends little credible support for the memo's conclusion.

First of all, the fact that the magazine's poorest-selling issues were the ones with international cover stories might be explained by a variety of factors. Perhaps international events themselves were not as interesting during those periods. If so, it might be a mistake to refrain from emphasizing international events when those events are interesting enough to stimulate sales. Or perhaps the news magazine business is seasonal, or cyclical, and those particular issues would have sold more poorly regardless of the cover story. In short, without

ruling out other possible explanations for the relatively poor sales of those particular issues the publisher cannot justifiably conclude that international cover stories were the cause of the relatively poor sales.

Secondly, the memo fails to indicate whether other magazines experienced an increase or a decrease in sales by reducing their emphasis on international news. It is possible, for instance, that the other magazines experienced declining sales even for issues focusing only on domestic news. If so, then the publisher's recommendation would make little sense. On the other hand, if other magazines experienced the same correlation between cover story and sales volume, this fact would lend considerable support to the publisher's conclusion that international cover stories were responsible for poor sales.

Thirdly, the memo cites increasing costs of maintaining international news bureaus as an additional reason to de-emphasize international news. While this fact does lend support to the publisher's suggestion, the publisher overlooks the possibility that if other news magazines de-emphasize international coverage due to increasing bureau costs, Newsbeat might turn out to be the only magazine covering international news, which in turn might actually stimulate sales. It would be hasty to implement the publisher's suggestion without acknowledging and exploring this possible scenario.

In conclusion, the memo is unconvincing as it stands. To strengthen the argument, the publisher must show that it was the international covers of Newsbeat, and not some other factor, that were responsible for the relatively poor sales of issues with those covers. To better assess the publisher's recommendation that Newsbeat should de-emphasize international news, we would need to know what changes in sales volume other news magazines experienced by de-emphasizing international news. We would also need more information about the impact that increasing bureau costs will have on magazines presently competing with Newsbeat in the area of international news.

Argument 62

The following recommendation was made by the president and administrative staff of Grove College, a private institution, to the college's governing committee.

"We recommend that Grove College preserve its century-old tradition of all-female education rather than admit men into its programs. It is true that a majority of faculty members voted in favor of coeducation, arguing that it would encourage more students to apply to Grove. But eighty percent of the students responding to a survey conducted by the student government wanted the school to remain all female, and over half of the alumni who answered a separate survey also opposed coeducation. Keeping the college all-female, therefore, will improve morale among students and convince alumni to keep supporting the college financially."

In this memo Grove College's administration recommends preserving its tradition of admitting only female students. The administration admits that most faculty members are in favor of a co-educational policy as a means of encouraging more students to apply to Grove. But the administration defends its recommendation by citing a student government survey in which 80% of student respondents and more than 50% of alumni respondents reported that they favor the status quo. The administration reasons that preserving the status quo would

improve student morale and help ensure continued alumni donations to Grove. This argument is flawed in several critical respects.

First, the memo provides no evidence that the results of either of the two surveys are statistically reliable. For example, suppose newer students tend to be content with the all female policy while students who have attended Grove for a longer time would prefer a co-educational policy. If a disproportionate number of the survey's respondents were newer students, then the survey results would distort the student body's opinion as a group. With respect to the alumni survey, perhaps fewer alumni who donate substantial sums to Grove responded to the survey than other alumni did. If so, then the survey results would distort the comparison between the total amount of future donations under the two scenarios. Besides, the memo provides no information about what percentage of Grove's students and alumni responded to the surveys; the lower the percentages, the less reliable the results of the surveys.

Secondly, the administration hastily assumes that Grove's alumni as a group would be less inclined to donate money merely if Grove begins admitting male students. This aspect of Grove's admission policy is only one of many factors that might affect alumni donations. For example, since Grove's faculty are generally in favor of changing the policy, perhaps the change would improve faculty morale and therefore the quality of instruction, in turn having a positive impact on alumni donations. And, if the particular alumni who are in a position to make the largest contributions recognize faculty morale as important, an increase in donations by these individuals might very well offset a decline in smaller donations by other alumni.

Finally, the administration's argument that student morale would improve under the status quo is logically unsound in two respects. First, the administration provides no reason why morale would improve, as opposed to remaining at its current level, if the status quo is simply maintained. Second, the administration cannot logically determine how the morale of the student body would be affected under a co-educational policy until it implements that policy and takes into account the morale of the new male students along with that of all female students.

In sum, the administration has failed to convince me that maintaining Grove's all-female policy would be more likely to improve student morale and help ensure continued alumni donations than moving to a co-educational policy. To better assess the argument I would need detailed information about the two surveys to determine whether the respondents as groups were representative of their respective populations. To bolster its recommendation the administration must provide better evidence--perhaps by way of a reliable alumni survey that takes into account respondents' financial status and history of donations--that prospective donor alumni would be strongly opposed to a co-educational policy and would be less inclined to donate money were Grove to implement such a policy.

Argument 63

The following appeared in a letter to the school board in the town of Centerville.

"All students should be required to take the driver's education course at Centerville High School. In the past two years several accidents in and around Centerville have involved teenage drivers. Since a number of parents in Centerville have complained that they are too

busy to teach their teenagers to drive, some other instruction is necessary to ensure that these teenagers are safe drivers. Although there are two driving schools in Centerville, parents on a tight budget cannot afford to pay for driving instruction. Therefore an effective and mandatory program sponsored by the high school is the only solution to this serious problem."

This letter recommends mandatory driver's education courses at Centerville High School. The author bases this recommendation on three facts: during the last two years several Centerville car accidents have involved teenage drivers; Centerville parents are too busy to teach driving to their children; and the two private driver-education courses in the area are expensive. As discussed below, the argument suffers from several critical flaws and is therefore unpersuasive.

First of all, the letter fails to indicate who or what caused the car accidents to which the letter refers. If Centerville High School students caused the accidents, and if those accidents would have been avoided had these students enrolled in the high school's driving course, then the argument would have merit. However, it is equally likely that the other drivers were at fault, or that no driver was at fault. Moreover, it is entirely possible that the teenage drivers had in fact taken the high school's driving course, or that they were not local high school students in the first place. The author must rule out all these possibilities in order to conclude confidently that a school-sponsored mandatory driving course would have prevented these accidents.

Secondly, whether the fact that several car accidents the last two years involved teenage drivers suggests a need for a mandatory driving course depends partly on the comparative accident rate during earlier years. It is entirely possible, for instance, that the rate of accidents involving teenagers has been steadily declining, and that this decline is due to the availability of the two private driving courses. Without ruling out this possibility, the letter's conclusion is not defensible.

The argument is problematic in certain other respects as well. It assumes that a mandatory school-sponsored course would be effective, yet provides no evidence to support this assumption. Similarly, the argument fails to substantiate its assumption that a significant percentage of Centerville's parents cannot afford private driving instruction for their teenage children. Absent substantiating evidence for either of these necessary assumptions, I cannot be convinced that Centerville should establish the proposed driving course.

In conclusion, the letter's author fails to adequately support the recommendation for a school-sponsored mandatory driving course. To strengthen the argument, the author must provide clear evidence that Centerville High School students caused the accidents in question, and that a mandatory driving course would have prevented them. To better evaluate the argument, I would need more information about the affordability of the two private driving courses and about the effectiveness of a mandatory school-sponsored course compared to that of the two private courses.

Argument 64

The following is a memorandum from the sales director to the president of the Healthy-and-Good food company.

"A recent study indicates that Venadial, a new margarine currently produced only in the

country of Alta, actually reduces cholesterol levels. Derived from the resin of pine trees, Venadial works by activating a metabolic response that is not yet well understood. However, cholesterol levels fell ten to fifteen percent among participants in the study who consumed Venadial daily, and the risk of heart attack by one-third. In addition, the new margarine is so popular that stores in Alta are unable to keep it on their shelves. Therefore, if our company obtains the exclusive right to sell Venadial internationally, our profits are sure to increase substantially within a very short time."

In this memo the sales director of Healthy-and-Good food company recommends obtaining the exclusive right to sell the new margarine Venadial internationally in order to increase company profits substantially and quickly. To support this recommendation the director points out that, in a recent study, participants who consumed Venadial daily experienced a decrease in their cholesterol level and in their risk of heart attack. The director also points out that in Alta, the only country where Venadial is currently produced, this margarine is extremely popular among consumers. This argument contains several critical flaws, which render it unpersuasive.

First of all, the memo lacks sufficient information about how the study was conducted to determine what conclusions, if any, can be drawn from it. Unless all other conditions potentially affecting cholesterol level and heart-attack risk remained constant during the study, and unless the study included a statistically significant number of participants, any conclusions from the study are simply unreliable. Moreover, the memo fails to indicate whether the study also included a distinct group of participants who did not consume Venadial daily. If it did, then the comparison of cholesterol levels and heart attacks between the two groups would help us to assess the strength of the memo's claims about the health benefits of Venadial.

Secondly, the memo unfairly assumes that since Venadial is popular in Alta it will also be popular in other countries. Consumer tastes in foods like margarine, as well as concerns about health matters such as cholesterol level, vary widely from country to country. It is quite possible that consumers in Alta enjoy the taste of Venadial more than other consumers would, or that consumers in Alta are more concerned than the average person about cholesterol level and heart attacks. Since the memo provides no evidence that tastes and health concerns of Alta consumers are representative of those of people generally, the sales director's conclusion that Venadial will be popular elsewhere is unjustifiable, at least based on the memo.

Thirdly, even if Venadial is shown conclusively to carry the touted health benefits and to be popular worldwide, Healthy-and-Good WIU not necessarily earn a substantial profit by acquiring international rights to sell Venadial. The memo provides no information about the costs involved in manufacturing and distributing Venadial—only that it is derived from pine-tree resin and has been produced only in Alta. Perhaps Venadial can be derived only from certain pine trees located in Alta and surrounding regions. If so, then the costs of procuring Venadial might prevent the company from earning a profit. In short, without more information about supply, demand, and production costs, it is impossible to determine whether the company can earn a profit from acquiring international rights to sell Venadial.

In sum, the memo's recommendation is not well supported. Before I can accept it, the sales director must supply dearer evidence that (1) Venadial contributes to lower cholesterol level and decreased heart-attack risk, (2) consumers outside of Alta would prefer Venadial over

alternative products, and (3) the revenue from sales of Venadial would significantly outweigh the costs of producing and distributing the product.

Argument 65

The following is a letter that recently appeared in the Oak City Gazette, a local newspaper.

"Membership in Oak City's Civic Club---a club whose primary objective is to discuss local issues---should continue to be restricted to people who live in Oak City. People who work-in Oak City but who live elsewhere cannot truly understand the business and politics of the city. It is important to restrict membership to city residents because only residents pay city taxes and therefore only residents understand how the money could best be used to improve the city. At any rate, restricting membership in this way is unlikely to disappoint many of the nonresidents employed in Oak City, since neighboring Elm City's Civic Club has always had an open membership policy, and only twenty-five nonresidents have joined Elm City's Club in the last ten years."

This letter recommends that membership in Oak City's Civic Club, the primary objective of which is to discuss local issues, be limited to local residents. To support this recommendation, the author claims that since only residents pay local taxes they are the only people who sufficiently understand local business and political issues. The author also cites the fact that in the last ten years very few non-residents of Oak City who work in Oak City have joined nearby Elm City's civic club, which is open to any person. The argument suffers from two critical flaws and is therefore unpersuasive as it stands.

To begin with, the letter fails to adequately support the claim that since only residents pay local taxes only they truly understand local business and political issues. Even given the dubious assumption that being a local taxpayer affords one an understanding of local business and political issues, it is fallacious to conclude that being a local taxpayer is a necessary condition for understanding these issues. Moreover, common sense tells me that local business people, residents or not, would probably be more intimately involved in many such issues than local residents who do not have business interests in the town. Having failed to address this distinct possibility, the letter is wholly unconvincing.

In further support of the recommendation, the letter cites the fact that nearby Elm City's civic club is open to any person, yet very few Oak City business people who are not residents have joined Elm City's club in the last ten years. But this fact alone lends no support to the recommendation. It is possible, for instance, that these business people have no connection with Elm City whatsoever, or that these business people have been members of Elm City's civic club for longer than ten years. The author must eliminate these possibilities in order to rely justifiably on this evidence for his or her recommendation.

In conclusion, the letter's author fails to adequately support the recommendation that Oak City civic club membership be restricted to local residents. To strengthen the argument, the author must provide dear evidence that non-residents who work in Oak City do not understand local issues as well as residents do. To better evaluate the argument, we would need more information about why non-resident business people in Oak City have not joined Elm City's civic club during the last ten years.

Argument 66

The following appeared in the annual report from the president of the National Brush Company.

"In order to save money, we at the National Brush Company have decided to pay our employees for each brush they produce instead of for the time they spend producing brushes. We believe that this policy will lead to the production of more and better brushes, will allow us to reduce our staff size, and will enable the company factories to operate for fewer hours---resulting in savings on electricity and security costs. These changes will ensure that the best workers keep their jobs and that the company will earn a profit in the coming year."

In this report, the president of National Brush Company (NBC) concludes that the best way to ensure that NBC will earn a profit next year is for the company to pay its workers according to the number of brushes they produce--rather than hourly. To support this conclusion, the president claims that the new policy will result in the production of more and better brushes, which in turn will allow NBC to reduce its staff size and operating hours, thereby cutting expenses. This argument is fraught with dubious assumptions, which render it entirely unconvincing.

First of all, the argument relies on the unsubstantiated assumption that the new policy will motivate workers to produce brushes more quickly. Whether this is the case will depend, of course, on the amount earned per brush and the rate at which workers can produce brushes. It will also depend on the extent to which NBC workers are content with their current income level. Lacking evidence that the new policy would result in the production of more brushes, the president cannot convince me that this policy would be an effective means to ensure a profit for NBC in the coming year.

Even if the new policy does motivate NBC workers to produce more brushes, the president's argument depends on the additional assumption that producing brushes more quickly can be accomplished without sacrificing quality. In fact, the president goes further by predicting an increase in quality. Yet common sense informs me that, if the production process otherwise remains the same, quicker production is likely to reduce quality--and in any event certainly not increase it. And a decline in quality might serve to diminish the value of NBC's brushes in the marketplace. Thus the ultimate result of the new policy might be to reduce NBC's revenue and, in mm, profits.

Even assuming that as the result of the new policy NBC's current work force produces more brushes without sacrificing quality, reducing the size of the work force and the number of operating hours would serve to offset those production gains. Admittedly, by keeping the most efficient employees NBC would minimize the extent of this offset. Nevertheless, the president provides no evidence that the result would be a net gain in production. Without any such evidence the president's argument that the new policy will help ensure profitability is highly suspect.

In sum, the president has failed to provide adequate evidence to support his claim that the new policy would serve to ensure a profit for NBC in the coming year. To strengthen the argument, NBC should conduct a survey or other study to demonstrate not only its workers'

willingness to work more quickly but also their ability to maintain quality at a quicker pace. To better assess the argument I would need detailed financial projections comparing current payroll and other operating costs with projected costs under the new policy--in order to determine whether NBC is likely to be more profitable under the proposed scheme.

Argument 67

The following is a memorandum written by the director of personnel to the president of the Cedar Corporation.

"It would be a mistake to rehire the Good-Taste Company to supply the food in our employee cafeteria next year. It is the second most expensive caterer in the city. In addition, its prices have risen in each of the last three years, and it refuses to provide meals for people on special diets. Just last month three employees complained to me that they no longer eat in the cafeteria because they find the experience 'unbearable.' Our company should instead hire Discount Foods. Discount is a family-owned local company and it offers a varied menu of fish and poultry. I recently tasted a sample lunch at one of the many companies that Discount serves and it was delicious---an indication that hiring Discount will lead to improved employee satisfaction."

This memo recommends that Cedar Corporation replace its current food provider, Good-Taste, with Discount Foods. To support this recommendation, the memo's author cites Good-Taste's increasing fees, the fact that three Cedar employees refuse to eat in the cafeteria, and various features of Discount Foods. For several reasons, this evidence fails to provide adequate support for the recommendation.

The memo's reliance on the fact that three Cedar employees find eating in the company cafeteria "unbearable" presents two problems. First, the memo unfairly assumes that Good-Taste is responsible for these complaints. It is entirely possible that other conditions in the cafeteria are instead responsible. Second, the memo assumes that complaints by only three Cedar employees constitutes a statistically significant number which warrants replacing Good-Taste with another food provider. However, the memo provides no evidence that this is the case.

Another problem with the recommendation is that it relies partly on the fact that Good Taste has been increasing its fees and is now the second-most-expensive food provider available to Cedar. Yet the recommendation is based on what food provider would best satisfy Cedar's employees, not what provider would reduce Cedar's costs. In other words, this evidence is not directly relevant to the reasons for the author's recommendation. Even if expense were a legitimate factor, it is possible that Discount is even more expensive than Good-Taste.

Yet another problem with the recommendation is that it relies partly on the need to accommodate employees with special dietary needs. The memo provides no evidence that Good-Taste is any less capable than Discount of accommodating these employees. Rather, the memo merely provides that Discount offers "a varied menu of fish and poultry." Without a more detailed comparison between the offerings of the two compapies, it is unfair to conclude that one would meet the needs of Cedar's employees better than the other would.

Finally, the recommendation relies partly on the fact that in one taste test the memo's author found Discount Foods to be "delicious." In all likelihood, however, the author's tastes do not

represent the collective tastes of Cedar employees; accordingly, the author's report is patently insufficient to demonstrate that Cedar's employees would be more satisfied with Discount than with Good-Taste.

In conclusion, the letter's author fails to adequately support the recommendation that Cedar replace Good-Taste with Discount. To strengthen the argument, the author must provide clear evidence that Cedar employees are dissatisfied with Good-Taste's food, and that they would be more satisfied with Discount's food. To better evaluate the argument, we would need more information comparing the two companies' menus to determine which is more varied and caters to those with special dietary needs.

Argument 68

The following is a recommendation from the personnel director to the president of Acme Publishing Company.

"Many other companies have recently stated that having their employees take the Easy Read Speed-Reading Course has greatly improved productivity. One graduate of the course was able to read a five-hundred-page report in only two hours; another graduate rose from an assistant manager to vice president of the company in under a year. Obviously, the faster you can read, the more information you can absorb in a single workday. Moreover, Easy Read costs only \$500 per employee---a small price to pay when you consider the benefits to Acme. Included in this fee is a three-week seminar in Spruce City and a lifelong subscription to the Easy Read newsletter. Clearly, Acme would benefit greatly by requiring all of our employees to take the Easy Read course."

In this argument, the personnel director of Acme Publishing claims that Acme would benefit greatly from improved employee productivity if every employee takes the 3-week Easy-Read seminar at a cost of \$500 per employee. To support this claim the director points out that many other companies have claimed to benefit from the seminar, that one student was able to read a long report very quickly afterwards, and that another student saw his career advance significantly during the year after the seminar. However, close scrutiny of the evidence reveals that it accomplishes little toward supporting the director's claim, as discussed below.

First of all, the mere fact that many other companies benefited greatly from the course does not necessarily mean that Acme will benefit similarly from it. Perhaps the type of reading on which the course focuses is not the type in which Acme Publishing employees often engage at work. Moreover, since Acme is a publishing company its employees are likely to be excellent readers already, and therefore might stand to gain far less from the course than employees of other types of companies.

Secondly, the two individual success stories the argument cites amount to scant evidence at best of the course's effectiveness. Moreover, the director unfairly assumes that their accomplishments can be attributed to the course. Perhaps both individuals were outstanding readers before taking the course, and gained nothing from it. Regarding the individual whose career advanced after taking the course, any one of a myriad of other factors might explain that advancement. And the individual who was able to read a long report very quickly after the course did not necessarily absorb a great deal of the material.

Thirdly, the director assumes without warrant that the benefits of the course will outweigh its costs. While all of Acme's employees take the 3-week course, Acme's productivity might decline significantly. This decline, along with the substantial fee for the course, might very well outweigh the course's benefits. Without a complete cost-benefit analysis, it is unfair to conclude that Acme would benefit greatly should all its employees take the course.

In sum, the director's evidence does not warrant his conclusion. To support his recommendation he must first provide evidence that employees with similar reading skills as those that Acme employees possess have benefited significantly from the course, a survey of other publishing companies might be useful for this purpose. To better assess the argument I would need more information about the extent to which the course would disrupt Acme's operations. Specific information that would be useful would include the proximity of the seminar to Acme, the hours involved, and the percentage of Acme employees enrolled simultaneously.

Argument 69

From a letter to the editor of a city newspaper.

"One recent research study has indicated that many adolescents need more sleep than they are getting, and another study has shown that many high school students in our city are actually dissatisfied with their own academic performance. As a way of combating these problems, the high schools in our city should begin classes at 8:30 A.M. instead of 7:30 A.M., and end the school day an hour later. This arrangement will give students an extra hour of sleep in the morning, thereby making them more alert and more productive. Consequently, the students will perform better on tests and other assignments, and their academic skills will improve significantly."

This letter concludes that the academic performance of local high school students would improve if the daily school schedule were to begin and end one hour later. To support this recommendation the letter's author cites two studies, one showing that adolescents generally do not get enough sleep, the other showing that many local high school students are dissatisfied with their academic performance. The recommendation relies on a series of unsubstantiated assumptions about the habits of high school students and about the studies themselves. As a result, the letter is not convincing.

First of all, the letter's recommendation depends on the doubtful assumption that by beginning classes one hour later students will sleep one hour longer each night. Experience tells us, however, that this will not necessarily be the case. Just as likely, students will adjust to the new schedule by falling asleep one hour later. Moreover, by staying up one hour later at night students might very well engage in the sort of late-night social or even delinquent activities that would disrupt their productivity at school.

Secondly, the letter's conclusion relies on the assumption that one additional hour of sleep would in fact result in improved academic performance. While this might be the case, the letter provides no evidence to substantiate this assumption. It is entirely possible that one hour of additional sleep would not suffice. Moreover, the letter provides no evidence that the students who are dissatisfied with their academic performance are also the ones who would benefit

from the new schedule. It is entirely possible that these particular students already sleep longer than most other students, or that their academic performance is already optimal. Conversely, it is entirely possible that those students whose academic performance could stand the greatest improvement would be unmotivated to become better students regardless of how much they sleep each night.

A final problem with the argument involves the two studies themselves. The letter provides no information about how either study was conducted. Without knowing whether the sample of adolescents studied was representative of the overall high school population in the city, it is impossible to confidently apply the studies' results to that population. Moreover, we are not informed about the size of the sample in either study; the smaller the sample, the less reliable the study's conclusion.

In conclusion, this letter's recommendation for beginning and ending the high school day one hour later is not well justified. To strengthen the argument, the author must provide clear evidence that adjusting the schedule will in fact result in the students' sleeping longer each night, and that this additional sleep will in fact improve their academic performance. To better assess the author's recommendation, we would need more information about the sampling method used in the two studies.

Argument 70

Butter has now been replaced by margarine in Happy Pancake House restaurants throughout the southwestern United States. Only about 2 percent of customers have complained, indicating that 98 people out of 100 are happy with the change. Furthermore, many servers have reported that a number of customers who still ask for butter do not complain when they are given margarine instead. Clearly, either these customers cannot distinguish margarine from butter, or they use the term "butter" to refer to either butter or margarine. Thus, to avoid the expense of purchasing butter, the Happy Pancake House should extend this cost-saving change to its restaurants in the southeast and northeast as well.

In this argument the speaker recommends that, in order to save money, Happy Pancake House (HPH) should serve margarine instead of butter at all its restaurants. To support the argument, the speaker points out that HPH's Southwestern restaurants now serve margarine but not butter, and that only 2% of these restaurants' customers have complained about the change. The speaker also cites reports from many servers that a number of customers asking for butter have not complained when given margarine instead. This argument is unconvincing for several reasons.

First of all, the speaker does not indicate how long these restaurants have been refusing margarine to customers. If the change is very recent, it is possible that insufficient data have been collected to draw any reliable conclusions. Lacking this information I cannot assess the reliability of the evidence for the purpose of showing that HPH customers in the Southwest are generally happy with the change.

Secondly, the speaker fails to indicate what portion of HPH customers order meals calling for either butter or margarine. Presumably, the vast majority of meals served at any pancake restaurant call for one or the other. Yet it is entirely possible that a significant percentage of HPH customers do not order pancakes, or prefer fruit or another topping instead. The greater

this percentage, the less meaningful any statistic about the level of customer satisfaction among all of HPH's Southwestern customers as an indicator of preference for butter or margarine.

Thirdly, the speaker unfairly assumes that HPH customers unhappy with the change generally complain about it. Perhaps many such customers express their displeasure simply by not returning to the restaurant. The greater the percentage of such customers, the weaker the argument's evidence as a sign of customer satisfaction with the change. Two additional problems specifically involve the reports from "many" servers that "a number" of customers asking for butter do not complain when served margarine instead. Since the speaker fails to indicate the percentage of servers reporting or customers who have not complained to servers, this evidence is far too vague to be meaningful. Also, the speaker omits any mention of reports from servers about customers who have complained. Since the anecdotal evidence is one-sided, it is inadequate to assess overall customer satisfaction with the change.

Finally, even if HPH's Southwest customers are happy with the change, the speaker unfairly assumes that customers in other regions will respond similarly to it. Perhaps Southwesterners are generally less concerned than other people about whether they eat margarine or butter. Or perhaps Southwesterners actually prefer margarine to butter, in contrast to prevailing tastes elsewhere. Or perhaps Southwesterners have relatively few choices when it comes to pancake restaurants.

In sum, the speaker's argument is weak. To better assess it I would need to know: (1) how long the change has been in effect in the Southwest, (2) what percentage of HPH servers and managers have received customer complaints about the change, and (3) the number of such complaints as a percentage of the total number of HPH customers who order meals calling for either butter or margarine. To strengthen the argument, the speaker must provide clear evidence--perhaps by way of a reliable survey--that HPH customers in other regions are likely to be happy with the change and continue to patronize HPH after the change.

Argument 71

Many employees of major United States corporations are fearful that they will lose their jobs in the near future, but this fear is largely unfounded. According to a recent study, a majority of companies expected to make new hires in the coming year, while fewer companies expected to lay off employees. In addition, although it is very disturbing to be laid off, the proliferation of programs and of workshops designed to improve job-finding skills has made being laid off far less painful than it once was.

The speaker concludes that employees of major U.S. corporations should not fear that they will lose their jobs in the near future. To support this conclusion the speaker cites the fact that most companies expect to hire new employees next year, while fewer plan to lay off employees. The speaker also cites the current proliferation of job-finding resources. The argument is problematic in several critical respects.

First of all, the argument depends on the assumption that the total number of expected hires exceeds the total number of expected layoffs. However, we are not informed whether this is the case. It is possible that, although more companies expect to hire than lay off employees,

the total number of employees expected to be laid off exceeds the total number expected to be hired. If true, this fact would serve to refute the speaker's conclusion that employees of major U.S. corporations should not expect to be laid off.

Secondly, the argument assumes that the companies that expect to hire next year are major U.S. corporations. However, it is entirely possible that these are the firms that expect layoffs, while it is smaller companies that expect to hire. Common sense tells me that this is a reasonable possibility, because the number of small companies greatly exceeds the number of large U.S. corporations. Moreover, even if it is the major U.S. corporations that expect to do most of the hiring next year, it is entirely possible that it is these same companies that expect to do most of the laying off. Again, common sense informs me that this is entirely possible--that these employers intend to replace many current employees or job positions with new ones.

Thirdly, the argument rests on the dubious assumption that all conditions relevant to a company's decision to hire or lay off employees will remain unchanged in the near future. While this might be the case, it is equally possible that unexpected changes in general economic conditions will result in more layoffs among major U.S. corporations next year than these firms now anticipate.

Finally, the argument seems to rely partly on the proliferation of job-finding programs. While this fact might allay the worries of employees that they will not find new employment, it is irrelevant to whether these employees should expect to be laid off in the first place. In fact, it can even be argued that the proliferation of job-finding programs is evidence of increasing job attrition, and therefore evidence of that these employees' fears are well founded.

In conclusion, the argument is unconvincing as it stands. To strengthen it the author must provide clear evidence that the number of expected hires exceeds the number of expected lay-offs, and that major U.S. corporations are the companies planning to hire rather than to lay off employees.

Argument 72

In the Bayhead Public Library, books that are rarely borrowed continue to take up shelf space year after year, while people who want to read a recent novel frequently find that the library's only copy is checked out. Clearly, the library's plan to replace books that are borrowed no more than once a year with sufficient copies of more recent books will solve this problem. The protest we have heard since this plan was made public has come from a small, and thus unrepresentative, group of some thirty people and so should therefore be ignored.

In this argument the speaker supports Bayhead Public Library's plan to replace books that are borrowed less frequently than once per year with additional copies of recent novels. In support of this position, the speaker suggests that seldom-borrowed books amount to wasted shelf space because people who want to read recent novels frequently find the library's only copy checked out. In further support of this position, the speaker points out that only thirty people have protested the plan. I find the speaker's position unjustified in several critical respects.

First of all, the speaker ignores the possibility that replacing less popular books with more copies of popular new novels will undermine the library's primary function as a repository of a wide variety of books for free public access. New books are available at bookstores, whereas

older, less popular ones are not. Thus the library might lose the patronage of a large percentage of the community should it adopt the plan.

Secondly, the speaker unfairly implies that the library has only two options: to maintain the status quo or to follow the proposed plan. Some other alternative—one that would appease protesters while preserving community support—might provide an optimal long-term solution. For example, perhaps the library can remove books that have not been borrowed for three years or for five years, rather than for one year. Although this alternate plan would free up less shelf space than the current plan, it would nevertheless make room for the most popular new books.

Finally, the mere fact that only thirty people have protested the plan accomplishes little toward supporting the speaker's argument—for two reasons. First, this statistic is scant evidence that the community at large would support the plan; it is entirely possible that many opponents have simply not voiced their opposition. Second, the thirty protesters might very well be in a position to influence many other people; or they might be among the library's most significant financial patrons. In either event, ignoring these protesters might result in the ultimate loss of community or financial support the library needs to thrive, or even survive.

In sum, the library's plan seems neither well-reasoned nor well-supported. To strengthen her position, the speaker must convince me that the plan is the only viable option to maintaining the status quo. To better assess the plan's impact on the library's value as a community resource, I would need to know what percentage of the library's current inventory would be replaced under the plan. I would also need to know the extent of influence among the thirty protesters, and the extent of support for the plan among the vast majority of community members who have not voiced their opinions about it.

Argument 73

The following appeared in a letter from the owner of the Sunnyside Towers apartment building to its manager.

"One month ago, all the showerheads on the first five floors of Sunnyside Towers were modified to restrict the water flow to approximately 1/3 of its original force. Although actual readings of water usage before and after the adjustment are not yet available, the change will obviously result in a considerable savings for Sunnyside Corporation, since the corporation must pay for water each month. Except for a few complaints about low water pressure, no problems with showers have been reported since the adjustment. Clearly, restricting water flow throughout all the 20 floors of Sunnyside Towers will increase our profits further."

In this letter, the owner of an apartment building concludes that low-flow shower heads should be installed in showers on all 20 floors of the building, for the purpose of saving money. To support this conclusion, the owner cites the fact that since installing low-flow heads in showers on the bottom five floors only a few tenants have complained about low water pressure, and that no other problems with showers have been reported. However, this evidence provides little credible support for the owner's argument, as discussed below.

In the first place, the argument depends on the assumption that installation of low-flow heads on the first five floors has resulted in lower water costs for the owner. However, this

need not be the case. It is equally possible that tenants on these floors compensate for lower flow by either taking longer showers or by opening their shower valves further than they would otherwise. It is also possible that water pressure, and therefore water usage, on the remaining floors has increased as a result. It is even possible that during the month since installation many of the tenants on the bottom five floors have been absent from the building, and this fact explains why few tenants have complained.

In the second place, the owner ignores possible indirect consequences of installing lowflow shower heads on all 20 floors--consequences that in turn might adversely affect the owner's net operating income. For example, the more low-flow installations the more likely that one or more tenants will become disgruntled and vacate as a result. In fact, the owner has admitted that at least a few tenants have complained about these new shower heads. High tenant turnover might very well serve to increase the owner's overall operating costs.

In the third place, in order to reasonably conclude that low-flow heads will reduce total water usage in the building the owner must assume that other water uses will remain constant in the future. However, this will not necessarily be the case. Perhaps the water supplier will raise rates, or perhaps current tenants will be replaced by other tenants who use more water. Without ruling out such possibilities the owner cannot justifiably conclude that his total water costs will decrease after installing low-flow heads in every shower.

In conclusion, the argument is unconvincing as it stands. To strengthen it the owner must provide clear evidence that the use of a low-flow shower head in fact reduces total water usage. To better assess the argument we would need figures comparing water usage before and after installation. We would also need to know how many of the bottom five floors were occupied since the new heads were installed, and whether the tenants on these floors are likely to use more or less water than tenants on the upper floors.

Argument 74

The following is a recommendation from the director of personnel to the president of Professional Printing Company.

"In a recent telephone survey of automobile factory workers, older employees were less likely to report that having a supervisor present increases their productivity. Among workers aged 18 to 29, 27 percent said that they are more productive in the presence of their immediate supervisor, compared to 12 percent for those aged 30 or over, and only 8 percent for those aged 50 or over. Clearly, if our printing company hires mainly older employees, we will increase productivity and save money because of the reduced need for supervisors."

In this argument the personnel director of Professional Printing Company (PPC) recommends hiring older workers in order to increase productivity, as well as to save money by reducing costs of supervision. To support this recommendation, the director cites an auto-industry telephone survey ostensibly showing that older workers are generally less productive under close supervision than otherwise, whereas younger workers are generally more productive under close supervision than otherwise. This argument is flawed in several critical respects.

A threshold problem with the argument involves the statistical reliability of the survey. The

director provides no evidence that the number of respondents is statistically significant or that the respondents were representative of auto workers in general. Lacking information about the randomness and size of the survey's sample, the director cannot make a convincing argument based on that survey.

Even if the survey's respondents are representative of the entire population of auto workers, the argument relies on the assumption that the responses themselves are reliable. Yet the director ignores the possibility that a young, inexperienced worker is less likely to be forthright about the value of supervision--for fear of retaliation by that supervisor. For that matter, younger workers might not have enough experience working without supervision to determine when they are most productive. Lacking evidence that the respondents' reports were both truthful and meaningful, the director cannot confidently draw conclusions about worker productivity from them.

Even assuming that the survey data accurately reflect the auto industry, the argument unfairly assumes that supervision affects worker productivity similarly at PPC. Perhaps PPC employs certain unique equipment or processes that require close worker supervision--even for older, more experienced workers. For that matter, perhaps youth or inexperience is an advantage in working productively at PPC, whereas in the auto industry either is a disadvantage. In short, without accounting for possible differences between PPC and auto manufacturers the director cannot convince me that his recommendation for PPC is sound.

The argument also assumes that older people are more experienced, and thus less likely to benefit from supervision, than younger people. Although this assumption might generally be sound, it nevertheless might not hold true for workers at PPC specifically. In other words, despite their age many younger PPC workers might be more experienced at their jobs, and therefore more productive without supervision, than many older PPC workers.

Finally, even if hiring older workers will reduce the need for supervision, the director concludes too hastily that PPC will save money as a result. It is possible that older workers command a higher wage than younger workers do. If so, these higher wages might offset production gains and payroll savings accruing from reduced supervision.

In sum, the survey's statistical reliability and its relevance to PPC is questionable. To strengthen the recommendation the director must provide clear evidence that in the printing industry, and especially at PPC, older workers are more experienced or otherwise can work more productively without supervision than younger workers. To better assess the argument, I would need a detailed cost-benefit analysis that accounts not only for gains in productivity but also for the possible impact of hiring only older workers on total payroll costs.

Argument 75

The following appeared as part of an article in a health magazine.

"A new discovery warrants a drastic change in the diets of people living in the United States. Two scientists have recently suggested that omega -3 fatty acids (found in some fish and fish oils) play a key role in mental health. Our ancestors, who ate less saturated fat and more polyunsaturated fat, including omega -3 fatty acids, were much less likely to suffer from depression than we are today. Moreover, modern societies---such as those in Japan and Taiwan---that consume large quantities of fish report depression rates lower than that in the

United States. Given this link between omega -3 fatty acids and depression, it is important for all people in the United States to increase their consumption of fish in order to prevent depression."

The author of this article asserts that people who live in the U.S. should increase their fish consumption in order to prevent depression. To support this assertion, the author cites the fact that our ancestors, who were less likely to experience depression than we are today, consumed more omega-3 fatty acids, which help prevent depression and are found in some fish and fish oils. The author also cites the fact that in modern societies where people eat more fish than we do the reported incidence of depression is comparatively low. However, the author's reasoning is problematic in several critical respects.

The first problem with the argument involves the comparatively low incidence of depression among our ancestors. The author assumes that no factor other than the ingestion of omega-3 is responsible for this lower incidence. However, it is entirely possible that environmental or other dietary factors are instead responsible for the lower incidence. For example, perhaps other substances common in the U.S. diet today, and which promote depression, were not part of our ancestors' diets.

Another problem with the argument involves the low incidence of depression reported among today's fish-eating societies. To reasonably infer a causal relationship between fish-eating and low rates of depression in these societies, two assumptions are required. The first is that the types of fish consumed in these societies in fact contain omega-3; however the article provides no evidence that this is the case. The second assumption is that the reported incidence of depression accurately reflects the actual incidence. However, it is entirely possible that in those societies people generally do not report depression.

A third problem with the argument is that it assumes that omega-3 is only available in fish. However, the author provides no evidence to substantiate this crucial assumption. Perhaps people can ingest omega-3 by taking fish oil capsules rather than eating fish. Or perhaps omega-3 is also found in other foods as well. In either case, the author cannot reasonably conclude that we must eat more fish to ingest omega-3 and thereby help prevent depression.

Finally, in concluding that people in the U.S. must ingest more omega-3 to prevent depression, the author infers that this is the only means of preventing depression. This reasoning is fallacious. There might be a myriad of alternative ways to prevent depression; moreover, experience and common sense informs me that this is indeed the case.

In conclusion, the argument is unconvincing as it stands. To strengthen it, the author must provide clear evidence that no other factors explain the comparatively low incidence of depression among our ancestors. The author must also show that in modern fish-eating societies people in fact ingest more omega-3 than people in the U.S. do, and that the incidence of depression is in fact lower in those societies. To better evaluate the argument, we would need more information about alternative methods of preventing depression and alternative sources of omega-3.

Argument 76

A new report suggests that men and women experience pain very differently from one another,

and that doctors should consider these differences when prescribing pain medications. When researchers administered the same dosage of kappa options--- a painkiller---to 28 men and 20 women who were having their wisdom teeth extracted, the women reported feeling much less pain than the men, and the easing of pain lasted considerably longer in women. This research suggests that kappa opioids should be prescribed for women whenever pain medication is required, whereas men should be given other kinds of pain medication. In addition, researchers should reevaluate the effects of all medications on men versus women.

This argument concludes that the pain medication kappa opioids (KO) should be prescribed for women but not for men. To support this conclusion the speaker cites a recent study involving 28 men and 20 women who took KO when having wisdom teeth removed; according to these patients' reports, the women felt less pain than the men, and for the women the easing of pain lasted longer. The argument is flawed in several important respects.

One problem with the argument is that since the study involved only 48 people it is impossible to confidently draw any conclusions about the general population from it. Specifically, the argument overlooks other possible reasons why these particular women reported less pain than the men did. The women in the study might have a higher-than-average pain threshold; conversely, the men in the study might have a lower-than-average pain threshold. Or perhaps this group of women are less prone to complain about pain than this group of men---due to their unusually stoical nature or their experience with painful medical procedures.

Another problem with the argument is that it overlooks other factors that might have contributed to the amount of pain these patients experienced. Perhaps the women's wisdom teeth were not as impacted as the men's teeth generally, so that for the women the surgery was not as invasive and painful. Perhaps some of the women took other medications as well to help relieve the pain. For that matter, some of the men might have taken certain foods or medications that counteracted the effects of KO. In short, unless the experiment was conducted in a controlled environment in which all factors were the same for the men as for the women, it is impossible to draw any firm conclusions about the comparative effectiveness of KO for the two sexes.

Even if KO is more effective for women than for men, the argument's conclusion that men should take another pain medication instead is unwarranted. It is entirely possible that KO is still the most effective pain medication for men. Without comparing the effectiveness of KO to that of other pain medications, the speaker simply cannot justify his recommendation that men avoid KO.

In sum, the argument has not convinced me that men should take a medication other than KO for pain. To strengthen the argument the speaker must assure me that the men and women in the study are representative of men and women generally--in terms of their dental profile, experience in handling pain, and willingness to recognize and report pain. The speaker must also assure me that the study was performed in a controlled environment where all other factors possibly affecting pain remained constant. To better assess the argument I would need to know how effective KO is compared to other medications in reducing pain for men.

Argument 77

The following is a recommendation from the dean at Foley College, a small liberal arts college, to the president of the college.

"Since college-bound students are increasingly concerned about job prospects after graduation, Foley College should attempt to increase enrollment by promising to find its students jobs after they graduate. Many administrators feel that this strategy is a way for Foley to compete against larger and more prestigious schools and to encourage students to begin preparing for careers as soon as they enter college. Furthermore, a student who must choose a career path within his or her first year of college and who is guaranteed a job after graduation is more likely to successfully complete the coursework that will prepare him or her for the future."

The dean of Foley College claims that by guaranteeing prospective students that they will obtain jobs immediately upon graduation Foley can increase its enrollment and more effectively compete against more prestigious schools. To support this assertion the dean claims that students who commit early to a course of study and are guaranteed eventual employment are more likely to complete that coursework and will be better prepared for the future. On several grounds, however, the dean's argument is unconvincing.

First of all, the argument assumes that providing this guarantee will in fact result in increased enrollment. However, the dean provides no evidence that this will be the case. It is entirely possible that the sort of student attracted to Foley in the first place would not find such a guarantee a particularly enticing feature. In fact, since Foley is a liberal arts college its students are more likely to be interested in graduate-level study rather than immediate employment upon graduation.

Secondly, the dean provides no support for the claim that because of the proposed guarantee Foley students would be more likely to successfully complete the coursework they choose as entering freshman. To the contrary, experience and common sense inform us that while in college students often change their minds about their best career direction. Accordingly, by requiring an early commitment to a course of study Foley might be doing its students a disservice in terms of helping them select the course of study that they are most likely to complete successfully.

Thirdly, the dean provides no support for the final conclusion that the earlier a student's commitment to a course of study the better prepared the student will be for the future. It is entirely possible that exploring diverse options during the first year or two of college is a better way to prepare for one's future by providing the sort of well-rounded education that one might need for career flexibility. Without addressing this issue the dean cannot justifiably conclude that the proposed guarantee will better prepare Foley students for the future.

In conclusion, the argument is unconvincing as it stands. To strengthen it the dean must provide statistical evidence that college students who commit early to a course of study or who are promised eventual employment in that field are more likely than other college students to succeed in college and in their careers. Finally, to better evaluate the argument, we would need more information about why prospective students apply to Foley in the first place.

The following is a letter to the editor of the Glenville Gazette, a local newspaper.

"Over the past few years, the number of people who have purchased advance tickets for the Glenville Summer Concert series has declined, indicating lack of community support. Although the weather has been unpredictable in the past few years, this cannot be the reason for the decline in advance ticket purchases, because many people attended the concerts even in bad weather. Clearly, then, the reason for the decline is the choice of music, so the organizers of the concert should feature more modern music in the future and should be sure to include music composed by Richerts, whose recordings Glenville residents purchase more often than any other contemporary recordings. This strategy will undoubtedly increase advance ticket purchases and will increase attendance at the concerts."

This letter recommends that Glenville feature modern music, especially the music of Richerts, at its summer concerts in order to boost advance ticket sales and attendance. To support this recommendation the letter's author points out that advance-ticket sales have declined over the past few years, but that unpredictable weather cannot be the reason for the decline because "many people attended the concerts even in bad weather." The author concludes that choice of music must be the reason for the decline, then reasons further that since Richerts' recordings are very popular among Glenville residents featuring Richerts' music at the concerts would boost ticket sales and attendance. I find this argument to be logically unconvincing in several respects.

As a threshold matter, the author unfairly equates the number of ticket purchasers with the number of tickets purchased. The author ignores the possibility that the average number of tickets sold to each purchaser is increasing and, as a result, the total number of tickets is not declining--or perhaps even increasing. Thus the author cannot convincingly conclude that Glenville has a ticket-sale problem in the first place.

Even if the actual number of tickets sold in advance has been declining, the author concludes too hastily that unpredictable weather cannot be the reason for the decline. Perhaps concert attendees during the past few years have now learned from their experience with bad concert weather not to purchase advance tickets again. Besides, the mere fact that "many people" attended concerts in bad weather proves nothing unless the author can show that total attendance has been lower in bad weather than in good weather.

Even assuming unpredictable weather is not the reason for the decline in advance ticket sales, the author falsely assumes that the decline must be attributable to choice of music. This "either-or" argument is fallacious in that it ignores other possible causes of the decline. For example, perhaps during the last few years Glenville has begun its promotional efforts unusually late. Or perhaps the number of outlets where tickets are available in advance has declined. For that matter, perhaps Glenville's demographics are in flux so that the total number of residents willing and able to attend summer concerts is declining.

Finally, even assuming that choice of music is the true cause of the decline in advance ticket sales, the author fails to provide adequate evidence that choosing modern music, and Richerts' compositions in particular, will boost sales and attendance. The author unfairly assumes that people who purchase recordings are the same group that would be inclined to attend live concerts. Lacking evidence that this is the case, the author cannot convince me that

the proposed course of action will bring about its intended result.

In sum, the argument is logically unconvincing as it stands. To strengthen it the author must first establish a clear causal relationship between the number of people buying advance tickets and actual concert attendance. The author must also provide evidence--perhaps by way of a reliable survey--that the "many people" who have attended the concerts in bad weather are likely to do so again despite their experience. The author must then consider and eliminate all other possible explanations for the decline. Finally, to better assess the argument I would need more information about the musical tastes of the Glenville residents who are most inclined to attend live concerts.

Argument 79

The following is a letter from a professor at Xanadu College to the college's president.

"The development of an extensive computer-based long-distance learning program will enhance the reputation of Xanadu College. This program would allow more students to enroll in our courses, thereby increasing our income from student tuition. Traditional courses could easily be adapted for distance learners, as was shown by the adaptation of two traditional courses for our distance learning trial project last year. Also, by using computer programs and taped lectures, faculty will have fewer classroom obligations and more time to engage in extensive research, thereby enhancing the reputation of Xanadu."

In this letter a Xanadu College professor asserts that the development of an extensive distance-learning program would enhance the college's reputation, as well as increasing total enrollment and therefore total tuition income. To support this assertion the professor points out that in last year's trial program two traditional courses were easily adapted for distance learning. Next, the professor reasons that with more free time faculty could engage in extensive research, which in turn would enhance the college's reputation. The argument is flawed in several critical respects.

First of all, the professor's claim that an increase in enrollment would result in an increase in tuition income is warranted only if Xanadu students would be willing to pay a sufficiently high fee for distance-learning courses. However, it is entirely possible that Xanadu's distance learning courses would not command as high a fee as its traditional courses, and that Xanadu's total tuition income would actually decline if this less expensive alternative were available to Xanadu students.

Secondly, the professor's dual claims about distance learning--that it would enhance Xanadu's reputation and that it would increase enrollment and income--might very well be mutually exclusive alternatives. The availability of distance-learning courses might actually diminish Xanadu's overall reputation for quality education. Without addressing this issue the professor cannot justifiably conclude that the distance-learning alternative would achieve both goals.

A third problem with the argument involves last year's trial project. Despite the fact that two particular courses were easily adapted to distance learning, other courses might not be as adaptable. Common sense informs me that certain courses, especially in the arts, require hands-on learning to be effective. Thus the professor cannot justify her claim on the basis of

the trial project.

Finally, the professor's claim that distance learning would afford Xanadu faculty more free time to engage in extensive research raises two problems. First, it is possible that the time needed for faculty to adapt their courses for distance learning would equal or even exceed the time they would save by not teaching traditional classes. Second, even if a net time savings does result, the professor provides no evidence that Xanadu faculty would actually use this extra free time for research, or that additional research would in fact enhance Xanadu's reputation.

In conclusion, the argument is indefensible as it stands. To strengthen it the professor must provide specific information about Xanadu's current reputation, and provide clear evidence that distance learning would in fact enhance this reputation. The professor must also convince us that the two courses in the trial project were representative of Xanadu's other courses--in terms of the ease with which the faculty could adapt their courses to distance learning. Finally, to better assess the argument we would need a detailed analysis comparing loss in tuition from traditional-course enrollment with expected gains in tuition from distance-learning enrollment.

Argument 80

The following is a letter to the editor of the Roseville Gazette.

"Despite opposition from some residents of West Roseville, the arguments in favor of merging the townships of Roseville and West Roseville are overwhelming. First, residents in both townships are confused about which authority to contact when they need a service; for example, the police department in Roseville receives many calls from residents of West Roseville. This sort of confusion would be eliminated with the merger. Second, the savings in administrative costs would be enormous, since services would no longer be duplicated: we would have only one fire chief, one tax department, one mayor, and so on. And no jobs in city government would be lost---employees could simply be reassigned. Most importantly, the merger will undoubtedly attract business investments as it did when the townships of Hamden and North Hamden merged ten years ago."

This editorial recommends the merger of Roseville and West Roseville. The author claims that the merger would (1) eliminate confusion among both townships' residents about which authority to call for services; (2) reduce aggregate administrative costs by eliminating duplicative jobs and services, and (3) attract business investment as did the merger of Hamden and North Hamden ten years ago. The author claims further that the merger would result in certain job reassignments but not in the loss of any jobs for current municipal employees. I find these claims problematic in several respects.

First, although a merger might be necessary to eliminate current confusion about which authority to contact for services, the editorial overlooks the possibility that the merger will not in itself suffice to eliminate this confusion. Specifically, until the residents of both communities are apprised of the change and learn how to respond appropriately, confusion will continue--and perhaps even increase in the short term. Thus some measure of community awareness and responsiveness might also be required for the elimination of confusion.

Secondly, the editorial seems to make two irreconcilable claims. One is that the merger will

result in the elimination of certain duplicative jobs; the other is that no current municipal employee will become unemployed as a result of the merger. The editorial fails to consider that eliminating duplicative jobs would decrease the aggregate number of current municipal employees unless enough new jobs are created to offset the decrease, and that new jobs would in turn add to administrative costs. Thus as it stands the argument is self-contradictory, and the author must either modify it by choosing between two competing objectives--preserving current employment levels and cutting costs---or somehow reconcile these two objectives.

Thirdly, the author's claim that the merger will attract business investment relies on the hasty assumption the newly merged Roseville would be similar to Hamden in every way affecting their attractiveness to business investment. Perhaps Hamden's business tax rates, labor pool, or even climate are more attractive than the newly merged Roseville's would be. If so, then the proposed merger in itself might accomplish little toward attracting business investment to Roseville. In other words, without evidence that Hamden and the newly merged Roseville would be equally attractive to business investments I cannot accept the author's conclusion that a merger will carry the same result for Roseville as for Hamden.

In sum, the editorial is not only logically unsound but also relies on several doubtful assumptions. To strengthen the argument the author must modify the recommendation to account for other measures needed to eliminate the confusion mentioned in the editorial. The author must also provide a cost-benefit analysis that accounts for the costs of creating new jobs to offset the elimination of duplicative jobs. Finally, the author must show that the new Roseville would be just as attractive to business investment as the new Hamden has been.

Argument 81

The Department of Education in the state of Atlanta recommends that high school students be assigned homework every day. Yet a recent statewide survey of high school math and science teachers calls the usefulness of daily homework into question. In the district of Sanlee, 86 percent of the teachers reported assigning homework three to five times a week, whereas in the district of Marlee, less than 25 percent of the teachers reported assigning homework three to five times a week. Yet the students in Marlee earn better grades overall and are less likely to be required to repeat a year of school than are the students in Sanlee. Therefore, all teachers in our high schools should assign homework no more than twice a week, if at all.

The speaker argues that if the state board of education required that homework be assigned to high school students no more than twice per week academic performance would improve. To support this assertion the speaker cites a statewide survey of math and science teachers. According to the survey, students in the Marlee district, who are assigned homework no more than once per week, achieve better grades and are less likely to repeat a school year than students in the Sanlee district, who are assigned homework every night. Close scrutiny reveals, however, that this evidence provides little credible support for the speaker's assertion.

To begin with, the survey appears to suffer from two statistical problems, either of which renders the survey's results unreliable. First, the speaker relies on statistics from only two districts; however, it is entirely possible that these two districts are not representative of the

state's school districts overall. Second, the survey involved only math and science teachers. Yet the speaker draws a broad recommendation for all teachers based on the survey's results.

In addition, the speaker's recommendation relies on the assumption that the amount of homework assigned to students is the only possible reason for the comparative academic performance between students in the two districts. However, in all likelihood this is simply not the case. Perhaps Sanlee teachers are stricter graders than Marlee teachers. Or perhaps Sanlee teachers are less effective than Marlee teachers, and therefore Sanlee students would perform more poorly regardless of homework schedule. Or perhaps fewer Sanlee students than Marlee students actually do their assigned homework. In short, in order to properly conclude that fewer homework assignments results in better academic performance, the speaker must first rule out all other feasible explanations for the disparity in academic performance between the two districts.

Finally, the survey results as reported by the speaker are too vague to support any firm conclusion. The speaker reports that Sanlee students receive lower grades and are more likely to repeat a school year than Marlee students. Yet the speaker does not indicate whether this fact applies to Sanlee and Marlee students generally, or just to math and science students. The speaker's recommendation for all high school students might be defensible in the former case, but not in the latter case.

In conclusion, the recommendation that all high school students be assigned homework once per week at most is indefensible based on the evidence. To strengthen the argument, the speaker must show that the reported correlation in the areas of math and science is also found among most other academic subjects. The speaker must also rule out other factors that might determine the students' grades and their likelihood of repeating a year. Finally, to better assess the argument we would need to know whether the reported disparity in academic performance between Sanlee and Marlee students involved only math and science students or all students.

Argument 82

A recent study suggests that people who are left-handed are more likely to succeed in business than are right-handed people. Researchers studied photographs of 1,000 prominent business executives and found that 21 percent of these executives wrote with their left hand. So the percentage of prominent business executives who are left-handed (21 percent) is almost twice the percentage of people in the general population who are left-handed (11 percent). Thus, people who are left-handed would be well advised to pursue a career in business, whereas people who are right-handed would be well advised to imitate the business practices exhibited by left-handers.

This argument recommends that all left-handed people should pursue a career in business and that right-handed people should learn to imitate the business practices of left-handed people. To support this recommendation the speaker cites a study of 1,000 prominent business executives, among whom 21 percent were photographed while writing with their left hand. The speaker then points out that only 11 percent of the general population is left-handed. The argument suffers from several logical flaws and is therefore unconvincing.

First of all, the study amounts to scant evidence of the speaker's implicit conclusion that left-handedness contributes to business success. Just because photographs show a person

writing with his or her left hand does not necessarily mean that the person is left-handed; many people are ambidextrous--using either hand to write or using one hand to write while using the other hand for other tasks. Besides, the 1,000 executives from the study are not necessarily representative of the overall population of prominent business executives. Moreover, many prominent executives might have risen to their status not by way of their achievements or business acumen but through other means--such as familial relationships. In short, the photographs in themselves prove little about the causal relationship between left-handedness and the ability to succeed in business.

Even if left-handed people are more likely to have an innate ability to succeed in business than right-handed people are, the author's conclusion that all left-handed people should pursue business careers unfairly assumes that all left-handed people are similar in terms of their talents, interests, and motivations. Common sense informs me that the best vocational choice for any person depends on a variety of factors. Thus without dearer evidence that left-handed people tend to be successful in business but unsuccessful in other vocations the speaker cannot justify such a sweeping recommendation for left-handed people.

Even if most left-handed people would be well advised to pursue business careers, the speaker's recommendation for right-handed people is unwarranted. Common sense informs me that any innate business acumen with which left-handed people might be endowed cannot be imitated. Moreover, the speaker assumes without substantiation that the way in which left-handed people conduct business is the only way to succeed in business. It is entirely possible that right-handed people have certain natural ways of thinking which lend themselves better to other business approaches. Without considering and ruling out this possibility the speaker cannot convince me that right-handed people should imitate the business practices of left-handed people.

In sum, the argument is logically unsound. To strengthen it the speaker must show that the 1,000 executives in the photos were in fact using their dominant hand, that they are representative of all prominent executives, and that prominence in business is generally the result of an executive's business practices. To better assess the argument I would need to compare the percentage of left-handed people who succeed in business with those who succeed in other vocations. I would also need more information about the business practices of left-handed people to determine whether they employ similar practices, and whether right-handed people who have succeeded in business employ different practices.

Argument 83

The following is a letter from an editor at Liber Publishing Company to the company's president.

"In recent years, Liber has unfortunately moved away from its original mission: to publish the works of regional small-town authors instead of those of big-city authors. Just last year, 90 percent of the novels we published were written by authors who maintain a residence in a big city. Although this change must have been intended to increase profits, it has obviously backfired, because Liber is now in serious financial trouble. The only way to address this problem is to return to our original mission. If we return to publishing only the works of regional small-town authors, our financial troubles will soon be resolved."

An editor at Liber Publishing contends here that Liber will become profitable again if and only if it returns to its original mission of publishing works primarily by small-town authors. To support this contention the editor cites the fact that since moving away from that mission Liber has become unprofitable. The editor's argument suffers from a series of logical problems, and is therefore wholly unpersuasive.

To begin with, the editor's recommendation depends on the assumption that no factors other than Liber's shift to big-city authors caused Liber's declining profits. However, common sense informs me that this assumption is a poor one. A myriad of other factors, including management and marketing problems, or shifting demand among book buyers, might just as likely be the cause of Hber's declining profits. Without ruling out these and other possible causes, the editor cannot justifiably conclude that by renaming to its original mission Liber will return to profitability.

Even assuming Liber's move away from small-town authors was the cause of its dedining profits, the editor's argument suffers from two classic fallacies which render the recommendation indefensible. First, the editor infers that the only way for Liber to return to profitability is to return to its original mission. Yet absent evidence to the contrary, other means of boosting its profits might also be available. Secondly, the editor infers that returning to its original mission is a sufficient condition for Liber's returning to profitability. This inference is also fallacious, at least without additional evidence to support it.

Finally, a careful reading of the argument reveals two additional problems. The editor indicates that 90% of Liber's novels are written by authors who maintain a residence in a big city. However, the editor fails to indicate whether these authors also maintain residences in small towns. If they do, then Liber has not in fact departed from its original mission, and the editor's argument is essentially moot. In addition, the editor fails to indicate what percentage of Liber's publications are novels; the lower the percentage the less likely that Liber has in fact departed from its original mission.

In conclusion, the editor's argument cannot be taken seriously as it stands. To strengthen it, the editor must show that Liber has in fact departed from its original mission, and that this departure was the actual cause of Liber's declining profits. To better evaluate the argument we would need to know what other means, if any, are available to Liber to help return the company to profitability.

Argument 84

The country Myria, which charges fees for the use of national parks, reports little evidence of environmental damage. This strongly suggests that for the country Illium, the best way to preserve public lands is to charge people more money when they are using national parks and wilderness areas for activities with heavy environmental impact. By collecting fees from those people who overuse public lands, Illium will help preserve those lands for present and future generations.

In this argument the speaker recommends that Illium's national parks charge higher fees to visitors whose activities carry a heavy environmental impact than to other visitors, in order to

help preserve Illium's public lands for the present and future generations. To support this recommendation the speaker points out that the country of Myria charges fees for use of its national parks and that Myria reports little evidence of environmental damage. This argument is flawed in several critical respects.

First, the argument assumes too hastily that the reports of conditions in Myria's parks are accurate. It is entirely possible that the reports were based on only cursory studies, or on studies at only a small percentage of Myria's parks; in either case the reports would amount to scant evidence of the extent of overall environmental damage in Myria's parks. Moreover, in my observation many environmental problems become apparent only after the passage of considerable time. Accordingly, if the reports are based on observations made over a brief period then the reports might be unreliable indicators of long-term environmental damage.

Even if little environmental damage has occurred at Myria's national parks, Myria's park fees are not necessarily responsible for the lack of damage--as the argument assumes. Perhaps the true reason for the pristine condition of these parks is that visitors engage in few activities that carry heavy environmental impact. Or perhaps visitors or park rangers take certain measures to mitigate the effects of those activities. For that matter, perhaps the number of visitors to Myria's parks has always been so insignificant that they could inflict little damage in any event. Unless the speaker can rule out these and other possible explanations for the pristine condition of Myria's parks, I cannot accept the further assertion that Illium would help preserve its parks by following Myria's example.

Even assuming Myria's park fees have prevented environmental damage in those parks, the speaker's recommendation depends on the additional assumption that the proposed fee increase will carry the same result for IUium. Yet it is entirely possible that the vast majority of Illium's park visitors would happily pay higher fees and continue heavy impact activities unabated. It is also possible that certain natural conditions in Illium's parks not present in Myria's parks exacerbate the impact of damaging activities. Thus, unless the speaker can show that conditions in IUium and Myria are similar in all respects that might affect the environmental impact of park fees and visitor activities, I cannot take the speaker's recommendation seriously.

In sum, the argument depends on a series of doubtful assumptions and is therefore unconvincing as it stands. To strengthen it the speaker must provide dear evidence that Myria's park environment has in fact not been damaged by visitors and that but for its fees Myria's parks would have incurred significantly more environmental damage. The speaker must also show that Myria and IUium are similar in terms of the extent to which park visitors engage in heavy-impact activities and the willingness of visitors to pay for engaging in these activities.

Argument 85

Statistics collected from dentists indicate that three times more men than women faint while visiting the dentist. This evidence suggests that men are more likely to be distressed about having dental work done than women are. Thus, dentists who advertise to attract patients should target the male consumer and emphasize both the effectiveness of their anesthetic techniques and the sensitivity of their staff to nervous or suffering patients.

This argument contends that dentists' advertisements should target male patients, and should focus on assuaging distress about the pain associated with dental work. To support this assertion the argument cites statistics showing that three times more men than women faint while visiting dentists. The argument suffers from several logical problems, and is therefore unpersuasive.

To begin with, the argument depends on the assumption that men who faint while visiting the dentist do so because they are distressed about the sorts of factors that the proposed advertising aims to address. Yet the argument provides no evidence clearly establishing this causal relationship. It is equally likely that other factors are instead responsible for the fact that more men than women faint at the dentist's office. Perhaps on average men suffer from more painful dental problems than women, explaining why more men than women faint at dental offices. Without ruling out this and other alternative explanations, the speaker cannot convince me that any advertising technique will reduce either distress or fainting among male patients.

Another problem with the argument is that the speaker provides no evidence that the proposed advertising techniques will have the intended effect. Perhaps fewer men than women notice dental advertisements. Or perhaps the proposed advertising techniques will have the opposite effect--by calling attention to the very sorts of images that cause distress and fainting. The speaker must address these possibilities and rule them out before we can accept the recommendation.

Finally, the speaker's recommendation relies on two unsubstantiated assumptions about the statistics that the speaker cites. The first is that the patients contributing to these statistics are representative of all dental patients. It is entirely possible, for instance, that a disproportionate number of male patients contributed to the statistics, rendering them biased and therefore unreliable. The second unsubstantiated assumption is that the number of patients contributing to these statistics is large enough to be statistically significant. Unless the speaker can substantiate this assumption, he cannot justifiably rely on these statistics to draw any general inferences about dental patients.

In conclusion, the argument cannot be taken seriously as it stands. To strengthen it, the speaker must show why men become distressed and faint during visits to their dentists, and that the proposed advertising techniques would in fact achieve their intended result. To better evaluate the argument we would need more information about the statistics that the argument cites--specifically, how many patients contributed to these statistics and whether these patients are representative of dental patients in general.

Argument 86

The citizens of Forsythe have adopted healthier lifestyles. Their responses to a recent survey show that in their eating habits they conform more closely to government nutritional recommendations than they did ten years ago. Furthermore, there has been a fourfold increase in sales of food products containing kiran, a substance that a scientific study has shown reduces cholesterol. This trend is also evident in reduced sales of sulia, a food that few of the healthiest citizens regularly eat.

In this argument the speaker concludes that Forsythe citizens have adopted healthier lifestyles. To justify this conclusion the speaker cites a recent survey of Forsythe citizens suggesting that their eating habits now conform more closely to government nutritional recommendations than they did ten years ago. The speaker also points out that sales of tdran, a substance known to reduce cholesterol, have increased fourfold, while sales of sulia, which few of Forsythe's healthiest citizens eat regularly, have been declining. This argument is unpersuasive for several reasons.

First, the survey must be shown to be reliable before I can accept any conclusions based upon it. Specifically, the responses must be accurate, and the respondents must be statistically significant in number and representative of the overall Forsythe citizenry in terms of eating habits. Without evidence of the survey's reliability, it is impossible to draw any firm conclusions about the current dietary habits of Forsythe citizens based on the survey.

Second, the argument relies on the dubious assumption that following the government's nutrition recommendations promotes health to a greater extent than following any other nutrition regime. It is entirely possible that the dietary habits of Forsythe citizens were healthier ten years ago than they are now. Thus without evidence to substantiate this assumption the speaker cannot reasonably conclude that the diet of Forsythe's citizens has become more nutritional.

Third, the speaker assumes too hastily that increasing sales of products with kiran indicates healthier eating habits. Perhaps Forsythe citizens are eating these foods in amounts or at intervals that undermine the health benefits of kiran. Without ruling out this possibility the speaker cannot reasonably conclude with any confidence that increased kiran consumption has resulted in improved health for Forsythe's citizens.

Fourth, the mere fact that few of Forsythe's healthiest citizens eat sulia regularly does not mean that sulia is detrimental to health as the speaker assumes. It is possible that sulia has no effect on health, or that it actually promotes health. Lacking firm evidence that sulia affects health adversely, and that healthy people avoid sulia for this reason, the speaker cannot justify any conclusions about the health of Forsythe's citizens from the mere fact that sulia sales are declining.

Finally, even if the dietary changes to which the speaker refers are healthful ones, the speaker overlooks the possibility that Forsythe citizens have been making other changes in their dietary or other habits that offset these healthful changes. Unless all other habits affecting health have remained unchanged, the speaker cannot justifiably conclude that the overall lifestyle of Forsythe's citizenry has become healthier.

In sum, the argument is unconvincing as it stands. To strengthen it the speaker must show that the survey accurately reflects the dietary habits of Forsythe's citizens, and that by following the government's nutritional recommendations more closely these citizens are in fact healthier. The speaker must also show that Forsythe's citizens have not made other dietary or other lifestyle changes that offset healthful changes. Finally, to better assess the argument I would need more information about the manner and extent to which Forsythe's citizens now consume kiran, and about the healthfulness of sulia.

Argument 87

Humans arrived in the Kaliko Islands about 7,000 years ago, and within 3,000 years most of the large mammal species that had lived in the forests of the Kaliko Islands had become extinct. Yet humans cannot have been a factor in the species' extinctions, because there is no evidence that the humans had any significant contact with the mammals. Further, archaeologists have discovered numerous sites where the bones of fish had been discarded, but they found no such areas containing the bones of large mammals, so the humans cannot have hunted the mammals. Therefore, some climate change or other environmental factor must have caused the species' extinctions.

In this argument the speaker concludes that humans could not have been a factor in the extinction of large mammal species in the Kaliko islands 3,000 years ago. To justify this conclusion, the speaker points out that no evidence exists that humans hunted or had other significant contact with these mammals. The speaker also points out that while archeologists have found bones of discarded fish in the islands, they have not found any discarded mammal bones there. For three reasons, this evidence lends little credibility to the speaker's argument.

First, the argument concludes too hastily that humans could not have had any significant contact with these mammals. In relying on the lack of physical evidence such as bones, the speaker overlooks the possibility that humans exported mammals--particularly their bones--during this time period. Without ruling out this alternative explanation for the disappearance of these species from the islands, the speaker cannot justify the conclusion that humans were not a factor in their extinction from the islands.

Secondly, the argument relies on the assumption that without significant contact with these other species humans could not have been a factor in their extinction. But the speaker provides no evidence that this is the case. Moreover, perhaps humans drove these other species away from their natural habitat not by significant contact but merely by intruding on their territory. Or perhaps humans consumed the plants and animals on which these species relied for their subsistence. Either scenario would explain how humans could have been a factor in the extinction of these species despite a lack of significant contact.

Thirdly, the speaker assumes that the bones of fish that archeologists have found discarded on the island were discarded by humans, and not by some other large mammal. However, the speaker provides no evidence to substantiate this assumption. Given other possible explanations for these discarded fish bones, this evidence in itself lends little credible support to the speaker's theory about the extinction of large species of mammals.

In conclusion, the argument is unconvincing as it stands. To strengthen it, the speaker must rule out the possibility that humans exported the bones of these other species. To better evaluate the argument, we would need more information about the diet of humans and of the now-extinct mammals during that time period; particularly, we would need to know whether those other mammals also fed on the fish whose discarded bones have been found on the islands.

Argument 88

The following appeared in a newspaper feature story.

"At the small, nonprofit hospital in the town of Saluda, the average length of a patient's stay is

two days; at the large, for-profit hospital in the nearby city of Megaville, the average patient stay is six days. Also, the cure rate among patients in the Saluda hospital is about twice that of the Megaville hospital. The Saluda hospital has more employees per patient than the hospital in Megaville, and there are few complaints about service at the local hospital. Such data indicate that treatment in smaller, nonprofit hospitals is more economical and of better quality than treatment in larger, for-profit hospitals."

This newspaper story concludes that the small, nonprofit hospital in Saluda provides more efficient, better-quality care than the for-profit hospital in Megaville. To justify this conclusion the author cites the following comparisons between the Saluda hospital and the Megaville hospital: At the Saluda hospital the average length of a patient's stay is shorter, the cure rate and employee-patient ratio are both higher, and the number of complaints from patients is lower. However, careful consideration of these facts reveals that they fail to justify the author's conclusion.

In the first place, the author unfairly assumes that a shorter hospital stay indicates a quicker recovery and therefore better care. It is equally possible that the Saluda hospital simply cannot afford to keep patients as long as it should to ensure proper care and recovery. Perhaps the hospital sends patients home prematurely for the purpose of freeing up beds for other patients. Since the author has failed to rule out other possible explanations for this shorter average stay, I remain unconvinced based on this evidence that the Saluda hospital provides better care than Megaville's hospital.

In the second place, the mere fact that the rate of cure at the Saluda hospital is higher than at Megaville's hospital proves nothing about the quality of care at either hospital. It is entirely possible that more Saluda patients suffer from curable problems than Megaville patients do. Without considering this possibility the author cannot justifiably rely on cure rates to draw any conclusions about comparative quality of care.

In the third place, a higher employee-patient ratio at Saluda is weak evidence of either better care or greater efficiency. Common sense informs me that it is the competence of each employee, not the number of employees, that determines overall quality of care. Besides, it is entirely possible that the comparatively large staff at Saluda is the result of organizational inefficiency, and that a smaller staff of more effective, better managed people would provide better care.

Finally, the mere fact that the Saluda hospital receives fewer patient complaints than Megaville's hospital proves nothing about either efficiency or quality of care. Even though the number of complaints is smaller, the percentage of patients complaining might be higher. Also, Megaville's staff might openly encourage patient feedback while Saluda's does not. This scenario accords with my observation that for-profit organizations are generally more concerned with customer satisfaction than non-profit organizations are.

In sum, the facts that the story cites amount to weak evidence that the Saluda hospital provides more efficient, better-quality care than Megaville's hospital. To strengthen the argument, the author must provide clear evidence that at the Saluda hospital patients are released earlier because they have received better care--rather than for some other reason. To better assess the argument, I would need to compare the percentage of Megaville's hospital patients who suffer from curable problems with the percentage of Saluda patients who suffer

from similar problems. Also, I would need more information from each hospital about complaint procedures and the percentage of patients who lodge complaints.

Argument 89

The following appeared as a letter to the editor of a farming publication.

"With continuing publicity about the need for healthful diets, and with new research about the harmful effects of eating too much sugar, nationwide demand for sugar will no doubt decline. Therefore, farmers in our state should use the land on which they currently grow sugar cane to grow peanuts, a food that is rich in protein and low in sugar. Farmers in the neighboring country of Palin greatly increased their production of peanuts last year, and their total revenues from that crop were quite high."

This letter concludes that to increase farm revenue this country's farmers should replace their sugar crops with peanuts. To support this assertion, the letter's author claims that demand for sugar is sure to decline due to a growing awareness of the health hazards of eating too much sugar. The author also cites the fact that in the nearby country of Palm increased peanut production has resulted in increased revenue for farmers. However, the author's argument relies on several poor assumptions, and is therefore unpersuasive as it stands.

A threshold problem with the letter involves the new research that the author cites to support his conclusion. The author fails to indicate whether consumers are in fact aware of the new research about the harmful effects of eating too much sugar, or whether consumers eat too much sugar in the first place. If consumers are unaware of the research, or if they do not currently eat too much sugar, then this research lends no support to the author's assertion that sugar consumption is likely to decline as a result of the new research.

Secondly, the argument unjustifiably assumes that growing consumer awareness of sugar's health hazards will cause consumers to not only decrease sugar consumption but also increase peanut consumption. Common sense informs me otherwise, especially considering the addictive quality of sugar. In fact, the author provides explicitly that peanuts are low in sugar, suggesting that peanuts are a poor substitute for sugar.

Thirdly, the author's claim that farm revenues will increase should farmers replace sugar crops with peanuts relies on certain dubious economic assumptions. One such assumption is that the market price of peanuts will be sufficiently high to compensate for lost revenue from current sugar sales. Another is that the supply of peanuts will suffice to provide farmers with sufficient revenue. Absent evidence comparing the market price of sugar to that of peanuts, as well as evidence about the capacity of this country's farms to grow peanut crops, it is impossible to assess the author's assertion that replacing sugar crops with peanuts will increase farm revenues.

Finally, the author's reliance on the fact that peanut-farming revenues in neighboring Pain have increased is problematic in two respects. First, the analogy depends on the assumption that dietary tastes of consumers in both countries are similar. However, it is entirely possible that consumer demand for peanuts in Pain would be higher than that in this country in any event. This would explain why, in Pain, demand has met increased production, and therefore why Pain's peanut-farming revenues have increased. The analogy also depends on the

assumption that environmental conditions in both countries equally support peanut crops. If they do not, then the author cannot justifiably rely on the profitability of Pain's peanut farms to conclude that peanut farms in the author's country would be just as profitable.

In conclusion, the argument is unconvincing as it stands. To strengthen it, the author must demonstrate that this country's consumers will in fact decrease their sugar consumption as a result of their growing awareness of its health risks. The author must also provide dear evidence that the demand for peanuts and the revenue from peanut production in this country are likely to match the current demand for sugar and farm revenue from sugar production, respectively. To better evaluate the argument we would need to compare the two countries' climatic and soil conditions; we would also need to compare consumer tastes in Palin with consumer tastes in the author's country.

Argument 90

The following appeared in a recommendation from the president of Amburg's Chamber of Commerce.

"Last October the city of Belleville installed high intensity lighting in its central business district, and vandalism there declined almost immediately. The city of Amburg has recently begun police patrols on bicycles in its business district but the rate of vandalism there remains constant. Since high intensity lighting is apparently the most effective way to combat crime, we should install such lighting throughout Amburg. By reducing crime in this way, we can revitalize the declining neighborhoods in our city."

Amburg's Chamber-of-Commerce president has recommended high-intensity lighting throughout Amburg as the best means of reducing crime and revitnlit, ing city neighbor hoods. In support of this recommendation the president points out that when Belleville took similar action vandalism declined there almost immediately. The president also points out that since Amburg's police began patrolling on bicycles the incidence of vandalism has remained unchanged. The president's argument is flawed in several critical respects.

First, the argument rests on the unsupported assumption that in BeUeviUe the immediate decline in vandalism was attributable to the lighting--rather than to some other phenomenon--and that the lighting has continued to serve as an effective deterrent there. Perhaps around the same time the city added police units or more after-school youth programs. Moreover, perhaps since the initial decline vandals have grown accustomed to the lighting and are no longer deterred by it. Without ruling out other feasible explanations for the decline and showing that the decline was a lasting one, the president cannot reasonably conclude on the basis of BelleviUe's experience that the same course of action would serve Amburg's objectives.

Secondly, the president assumes too hastily that Amburg's bicycle patrol has been ineffective in deterring vandalism. Perhaps other factors--such as a demographic shift or worsening economic conditions--have served to increase vandalism while the bicycle patrol has offset that increase. Thus without showing that all other conditions affecting the incidence of vandalism have remained unchanged since the police began its bicycle patrol the president cannot convincingly condude that high-intensity lighting would be a more effective means of

preventing vandalism.

Thirdly, the president falsely assumes that high-intensity lighting and bicycle patrolling are Amburg's only possible means of reducing crime. In all likelihood Amburg has a myriad of other choices--such as social programs and juvenile legal-system reforms, to name just a few. Moreover, undoubtedly vandalism is not the only type of crime in Amburg.

Thus unless the president can show that high-intensity lighting will deter other types of crime as well I cannot take seriously the president's conclusion that installing high intensity lighting would be the best way for Amburg to reduce its overall crime rate.

Finally, even if high-intensity lighting would be Amburg's best means of reducing crime in its central business district, the president's further assertion that reducing crime would result in a revitalization of city neighborhoods is unwarranted. Perhaps the decline of Amburg's city neighborhoods is attributable not to the crime rate in Amburg's central business district but rather to other factors--such as the availability of more attractive housing in the suburbs. And if the neighborhoods in decline are not located within the central business district the president's argument is even weaker.

In sum, the recommendation is not well-supported. To bolster it the president must show that BeUeville's decline in vandalism is lasting and is attributable to the lighting. The president must also show that lighting would be more effective than any other means at Amburg's disposal to reduce not just vandalism but other crimes as well. To better assess the recommendation I would need to know whether Amburg's declining city neighborhoods are located within the central business district, and whether any other factors might have contributed to the decline.

Argument 91

The following appeared in a letter to the editor of the Parkville Daily Newspaper.

"Throughout the country last year, as more and more children below the age of nine participated in youth-league softball and soccer, over 80,000 of these young players suffered injuries. When interviewed for a recent study, youth-league softball players in several major cities also reported psychological pressure from coaches and parents to win games. Furthermore, education experts say that long practice sessions for these sports take away time that could be used for academic activities. Since the disadvantages apparently outweigh any advantages, we in Parkville should discontinue organized athletic competition for children under nine."

This letter concludes that Parkville should not allow children under age nine to participate in organized competitive sports. To support this conclusion, the author points out the increasing number of children nationwide who become injured during athletic competitions. The author also cites the fact that in some big cities children report undue pressure from coaches and parents to win, and that long practice sessions take time away from a child's academic pursuits. However, the author's argument relies on a series of unsubstantiated assumptions, and is therefore unpersuasive as it stands.

One problem with the argument is that it assumes that the nationwide statistics about the incidence of sports injuries among youngsters applies equally to Parkville's children. Yet this might not be the case, for a variety of possible reasons. Perhaps Parkville maintains more

stringent safety standards than the national norm; or perhaps children's sporting events in Parkville are better supervised by adults, or supervised by more adults. Without ruling out such possibilities, the author cannot justifiably conclude that Parkville has a sports-injury problem to begin with.

A second problem with the argument is that it unjustifiably assumes that in Parkville parents and coaches unduly pressure youngsters to win organized athletic competitions. The only evidence the author provides to substantiate this assumption are the reports from "big city" children. We are not informed whether Parkville is a big city. Perhaps people who live in big cities are generally more competitive than other people. If so, and if Parkville is not a big city, then the author cannot justifiably rely on these reports to conclude that the proposed course of action is necessary.

A third problem with the argument is that it unfairly assumes that children do not benefit academically from participating in competitive sports. It is entirely possible that such sports provide children with the sort of break from academics that helps them to be more productive academically. It is also possible that the competitive drive that these sports might instill in young children carries over to their academics and spurs them on to perform well in school. Without considering such potential academic benefits, the author cannot reasonably conclude that for young children the disadvantages of participating in athletic competition outweigh the benefits.

In conclusion, the argument is unconvincing as it stands. To better evaluate the argument we would need more information about the incidence of sports injuries among young children in Parkville. To strengthen the argument the author must demonstrate that Parkville's parents and coaches exert the kind of pressure on their children reported by "big city" children and, if so, that this pressure in fact contributes to the sort of problems with which the author is concerned.

Argument 92

It is known that in recent years, industrial pollution has caused the Earth's ozone layer to thin, allowing an increase in the amount of ultraviolet radiation that reaches the Earth's surface. At the same time, scientists have discovered, the population of a species of salamander that lays its eggs in mountain lakes has declined. Since ultraviolet radiation is known to be damaging to delicate tissues and since salamander eggs have no protective shells, it must be the case that the increase in ultraviolet radiation has damaged many salamander eggs and prevented them from hatching. This process will no doubt cause population declines in other species, just as it has in the salamander species.

In this argument the speaker claims that increased ultraviolet radiation due to thinning of the Earth's ozone layer is responsible for the significant decline in the number of salamanders who lay their eggs in mountain lakes, and that this thinning will cause population declines in other species. To justify these claims the speaker points out that salamander eggs lack a protective shell and thus their tissues are highly susceptible to radiation damage, then reasons that the increased radiation must damage these eggs and prevent them from hatching. The argument is problematic in several critical respects, which render it unconvincing.

To begin with, the argument assumes that the salamander population is in fact declining, yet this assumption is not born out by the mere fact that the number of salamanders laying eggs in mountain lakes is declining. It is entirely possible that in other locations the salamander population is increasing. For that matter, perhaps the number of eggs a salamander lays in a mountain lake is increasing on average. Either scenario, if true, would seriously call into question any prediction about population changes for salamanders or for other species.

Even if the total salamander population is declining, an inverse correlation between ultraviolet radiation and salamander population does not suffice in itself to prove that the former causes the latter. The speaker must account for the possibility that the number of eggs salamanders lay is declining in all areas--regardless of the amount of radiation reaching the surface. The speaker must also eliminate all other reasonable explanations for the decline. For example, if the population of species that prey on salamanders or eat their eggs is increasing, this would explain the population decline and therefore undermine the speaker's entire argument.

Even assuming that the total salamander population is declining as a result of increasing radiation, the speaker cannot reasonably infer that other species are equally vulnerable to a population decline as a result. Perhaps the absence of a shell, combined with its mountain-lake location, renders a salamander egg more vulnerable to ultraviolet radiation than any other type of egg. If so, this fact would cast considerable doubt on the speaker's prediction for other species.

Finally, the speaker's grave prediction relies on the assumption that the ozone-thinning process will not reverse in the future. Although this assumption might be born out, on the other hand it might not. Without providing some assurance that the ozone layer will at least continue to be as thin as it is now, the speaker cannot convince me that other species will experience a population decline as a result of radiation damage to eggs.

In sum, the speaker's argument depends on a series of doubtful assumptions, and is therefore weak. To strengthen it the speaker must supply better evidence that the total salamander population is declining, and must rule out all other possible explanations for that decline. The speaker must also provide clear evidence that the current level of radiation reaching the surface is as potentially damaging to the eggs of other species, and must account for why other species have not already experienced a declining population. Finally, to better assess the argument I would need a reliable prognosis for the Earth's ozone layer.

Argument 93

The following appeared in a memorandum from the planning department of an electric power company.

"Several recent surveys indicate that homeowners are increasingly eager to conserve energy and manufacturers are now marketing many home appliances, such as refrigerators and air conditioners, that are almost twice as energy-efficient as those sold a decade ago. Also, new technologies for better home insulation and passive solar heating are readily available to reduce the energy needed for home heating. Therefore, we anticipate that the total demand for electricity in our area will not increase, and may decline slightly. Since our three electric generating plants in operation for the past 20 years have always met our needs, construction

of new generating plants should not be necessary."

The author of this memo concludes that there is no need for an additional electric power plant in the area because total electricity demand in the area is not likely to increase in the future. To support this conclusion the author cites the availability of new energy-efficient appliances and systems for homes, and the eagerness of area homeowners to conserve energy. However, the argument relies on several doubtful assumptions, and is therefore unpersuasive as it stands.

First, the author's projection for flat or declining total demand for electricity ignores business and commercial electricity usage. It is entirely possible that area businesses will increase their use of electricity in the future and that total electricity consumption will actually increase despite flat or declining residential demand. The author's projection also ignores the possibility that the number of area residents will increase in the future, thereby resulting in an increase in electricity usage regardless of whether more efficient appliances are used in area homes. Without taking into account these possibilities, the author cannot persuade me that total demand for electricity will not increase in the future.

Secondly, the author's conclusion relies on the assumption that area residents will actually purchase and install the energy-saving appliances and systems the author describes. Admittedly, the author points out that homeowners are "eager to conserve energy." Nevertheless, these homeowners might not be able to afford these new systems and appliances. Moreover, the energy-efficient insulation that the author mentions might be available only for new home construction, or it might be a gas system. In either case, the mere availability of this system might have no effect on total electric usage in existing homes.

A final problem involves the assertion that no new electric power plants are needed because the three existing plants, which are 20 years old, have always been adequate for the area's electric needs. The author fails to account for the possibility that the old plants are themselves less energy efficient than a new plant using new technology would be, or that the old plants need to be replaced due to their age, or for some other reason. Besides, this assertion ignores the possible influx of residents or businesses in the future, thereby increasing the demand for electricity beyond what the three existing plants can meet.

In conclusion, the argument is unconvincing as it stands. To strengthen it the author must show that area residents can afford the new energy-efficient appliances and systems, and that area commercial demand for electricity will not increase significantly in the foreseeable future. In order to better evaluate the argument, we would need to know whether the new energy-efficient technologies are available to businesses as well, and whether area businesses plan to use them. We would also need more information about expected changes in the area's population, and about the condition and energy-efficiency of the three current electric power plants.

Argument 94

The following appeared in a memo from the human resources department of Rifco Computer Company to the company president.

"In order to prevent conflicts in the workplace, Rifco Computer Company should require all its

employees to attend workshops that teach the technique of active listening, a technique in which people express feelings without assigning blame. This technique has clearly benefited Terland Publishing Company: five years ago, two hundred recently hired Terland employees volunteered to participate in a one-day active-listening workshop. Five years later, only five percent of these employees had filed formal complaints with the human resources department, whereas the company as a whole had a fifteen percent complaint rate during that period."

This memo's author concludes that to prevent workplace conflicts at Rifco Computer all employees should attend active-listening workshops. To justify this conclusion the author points out that five years ago 200 new workers at Terland Publishing volunteered for a one-day active-listening workshop, and that since then only 5% percent of those volunteers have filed formal complaints with Terland's human-resources department, compared to 15% of Terland's overall work force. The argument is unconvincing for several reasons.

First of all, the author assumes too hastily that the workshop at Terland, rather than some other phenomenon, was responsible for the comparatively low incidence of formal complaints by the workshop volunteers. Perhaps people who volunteer for such workshops tend to have better interpersonal skills to begin with, and are therefore less likely to find reason to complain about coworkers in any event. Moreover, a one-day "active listening" workshop is unlikely to have a lasting impact; were the workshop held more recently I would be more willing to accept the proposition that it was the reason for the low incidence of complaints among its attendees.

Secondly, even if the comparatively low incidence of complaints by Terland's workshop attendees is attributable to the workshop, the memo's conclusion rests on the additional assumption that the incidence of formal complaints is an accurate indicator of the level of workplace conflict. Yet the incidence of formal complaints might be a function of some other factor instead---such as an employee's tenure. New employees might be less prone than other workers to file formal complaints--possibly for fear of losing their jobs during a probation period. For that matter, perhaps most serious workplace conflicts calling for formal complaint come to a head only after many years of tension between workers; if so, this would provide an equally convincing explanation for the lower incidence of complaints among newer workers.

Thirdly, even if Terland's workshop volunteers did learn from the workshop to get along better with coworkers, the author unfairly assumes that similar workshops WIU carry a similar result at Rifco. Terland is an entirely different business than Rifco; accordingly, perhaps the ways in which workers at Terland interrelate are unlike those at Rifco. Or perhaps people who work in publishing are generally more irascible or mercurial than computer-industry workers. For that matter, perhaps Rifco employees are insufficiently motivated to benefit from the workshop--for whatever reason. In short, lacking evidence that Rifco employees match the profile of the volunteers at Terland in terms of the likelihood that they will respond similarly to similar workshops--the author's claim that the proposed workshops will prevent workplace conflict at Rifco is dubious at best.

In sum, the recommendation depends on a series of poor assumptions and is therefore unpersuasive. To strengthen it the author must consider and rule out all other possible reasons for the relatively low incidence of complaints by Terland's workshop attendees. The author must also show that the incidence of formal complaints is a fair measure of worker conflict. Finally, the author must show that workers at Rifco are similar to the volunteers at Terland in

terms of their willingness and ability to respond favorably to the proposed workshops.

Argument 95

The following recommendation was made by the Human Resources Manager to the board of directors of the Fancy Toy Company. "In the last three quarters of this year, under the leadership of our president, Pat Salvo, our profits have fallen considerably. Thus, we should ask for her resignation in return for a generous severance package. In Pat's place, we should appoint Rosa Winnings. Rosa is currently president of Starlight Jewelry, a company whose profits have increased dramatically over the past several years. Although we will have to pay Rosa twice the salary that Pat has been receiving, it will be well worth it because we can soon expect our profits to increase considerably."

In this memo a manager at Fancy Toy Company recommends replacing Pat Salvo, the company's current president, with Rosa Winnings, who is currently president of Starlight Jewelry. To support this recommendation the manager points out that Fancy's profits have declined during the last three quarters under Pat's leadership, while Starlight's profits have been increasing dramatically. The manager's argument is unconvincing for several reasons.

First, the manager's recommendation relies partly on the assumption that Pat was the cause of Fancy Toy's declining profits. However, this need not be the case. Perhaps the toy business is seasonal, and the coming quarter is always the most profitable one. Or perhaps the cost of materials or labor have increased, and Pat has had no control over these increases. Without taking into account such possibilities, the manager simply cannot reasonably conclude that Pat is responsible for Fancy's declining profits, and that replacing Pat will therefore enhance Fancy's profits.

Similarly, the manager's recommendation assumes that it is Rosa who has been primarily responsible for Starlight's profitability. However, the manager provides no evidence to affirm this assumption. It is entirely possible that all jewelry businesses have prospered recently, regardless of the abilities of the managers. Or perhaps the costs of precious metals and other materials have declined in recent years, thereby leading to increased profits for Starlight. Moreover, perhaps Rosa has only served as president of Starlight for a short while, and it was her predecessor who is to credit for Starlight's profitability. Without taking into account these possibilities, the manager cannot defend the conclusion that it is Rosa who is responsible for Starlight's increasing profitability.

Finally, the manager's recommendation to replace Pat with Rosa rests on the poor assumption that the two businesses are sufficiently similar that Rosa's experience and skill in one business will transfer to the other. Even if Starlight's increasing profitability is attributable to Rosa's leadership, she might nevertheless be unsuccessful leading a toy company, depending on how much experience in the toy business is required to successfully lead such a company.

In conclusion, the argument is unconvincing as it stands. To strengthen it the manager must show that Pat, and not some other factor beyond Pat's control, is responsible for Fancy's declining profits. Similarly, the manager must show that it is Rosa who is primarily responsible for Starlight's profitability, and that Rosa's abilities will transfer to the toy business. In order to better evaluate the argument, we would need more information about how long Pat and Rosa

have served as presidents of their respective companies, and what their long-term record is for leading their respective companies to profitability.

Argument 96

The following is a letter to the editor of a news magazine.

"Clearly, the successful use of robots on missions to explore outer space in the past 20 years demonstrates that robots could be increasingly used to perform factory work more effectively, efficiently, and profitably than human factory workers. The use of robots in factories would offer several advantages. First, robots never get sick, so absenteeism would be reduced. Second, robots do not make mistakes, so factories would increase their output. Finally, the use of robots would also improve the morale of factory workers, since factory work can be so boring that many workers would be glad to shift to more interesting kinds of tasks."

This editorial concludes that using robots for factory work would improve factory efficiency. To justify this conclusion the editorial's author cites the fact that robots have been used effectively in many space missions. Also, the author claims that the use of robots in factories would (1) reduce absenteeism because robots never get sick, (2) improve output because robots do not make errors, and (3) improve factory-worker morale because these workers could be reassigned to less boring jobs. However, the author's argument is problematic in several critical respects.

To begin with, the argument depends on the hasty assumption that the kinds of tasks robots perform in space are similar to the ones they would perform in factories, and that there are no differences between the two environments that would render robots less effective in factory jobs than in space missions. Perhaps the effectiveness of robots in space missions is due largely to the weightless environment of space. Or perhaps the average space-mission robot performs less work than a typical factory robot would be required to perform. In either case, the fact that robots are effective in space would amount to scant support the author's argument.

As for the author's claim that the use of robots would decrease absenteeism, although robots clearly do not get sick, in all likelihood factory robots would break down from time to time which is tantamount to absenteeism. Without accounting for this likelihood the author cannot rely on this claim to conclude that the use of robots would improve overall factory efficiency. Also questionable is the author's claim that the use of robots would increase factory output because robots do not make errors. Unless the author can provide clear evidence that human errors result in a lower rate of factory output, and not just a lower quality of product, I cannot be convinced that using robots would in fact increase the rate of output.

Two final problems involve the author's claim that using robots would improve the morale of factory workers, thereby improving factory efficiency. First, the author provides no assurances that if factory workers are reassigned to other types of jobs their morale would improve as a result. Although the new jobs might be less boring, these jobs might pose other problems which would adversely affect worker morale. Secondly, even if the morale of the workers improves as a result of reassignment, overall factory efficiency will not necessarily improve as a result. These workers might be ill-suited for their new jobs and thus be extremely ineffective in them.

In sum, the editorial relies on a potentially weak analogy as well as on a series of unwarranted claims. To strengthen the argument that the use of robots would improve factory efficiency, the editorial's author must at the very least provide clear evidence that factory robots would perform the same types of tasks, and just as well, as the tasks robots have performed in space missions. To better assess the strength of each of the author's three unwarranted claims, respectively, I would need to know: (1) the expected downtime i.e., absenteeism--for factory robots; (2) the extent to which human error decreases the rate of factory output; and (3) the extent to which human factory workers would be happy and effective in the new jobs to which they would be assigned.

Argument 97

The following appeared in a memorandum to faculty from the academic vice president of Waymarsh University.

"So that we can better accomplish Waymarsh University's academic goals, we should adopt the job-opportunity (job-op) program offered at Plateau Technical College and strongly encourage all students at Waymarsh to participate in it. The success of the job-op program at Plateau is evident: over the past two years, more than 75% of the freshmen at Plateau have enrolled in the optional job-op program. Moreover, at Plateau, the grades of job-op students are consistently higher than those of other students, 90% of the job-op students receive job offers within a month after their graduation, and most former job-op students report much success in their careers."

In this memo a Waymarsh University administrator recommends that in order to achieve its academic goals Waymarsh should adopt the same "job-op" program currently offered at Plateau Technical College. To support this recommendation, the administrator points out a high enrollment rate in the program at Plateau, high academic grades among Plateau students enrolled in the program compared to other Plateau students, and a high success rate among new Plateau graduates in finding jobs. The administrator's argument is unconvincing for several reasons.

First of all, the administrator does not inform us what Waymarsh's academic goals are. It is entirely possible that these goals have nothing to do with enrollment in job opportunity programs or in the job-placement rate for new graduates. Although Plateau's goals are likely to depend on its job-placement rate, perhaps Waymarsh's primary goal is to prepare its students for graduate-level study. Even if Waymarsh's goals involve job placement, there might be alternative means of accomplishing those goals. In short, without identifying Waymarsh's goals and ruling out other possible means of attaining them, the administrator cannot justifiably conclude that Waymarsh should adopt the job-op program.

Secondly, the fact that a high percentage of Plateau students enroll in Plateau's job-op program does not mean that a large portion of Waymarsh students will also enroll in the program. Plateau students might be far more concerned about obtaining employment immediately after graduation than Waymarsh students are. The fact that Plateau is a two-year technical college while Waymarsh is a university supports this assertion.

Thirdly, the fact that Plateau students enrolled in the job-op program attain higher grades than

other Plateau students does not necessarily mean that the job-op program is responsible for this phenomenon. Perhaps only the brighter, more competitive Plateau students enroll in the job-op program in the first place. Without ruling out this possibility, the administrator cannot convincingly conclude that Waymarsh students who enroll in the job-op program are more likely to attain better grades or find jobs upon graduation. In fact, a job-op program might actually thwart Waymarsh's efforts, by encouraging enrollees to quit school and take jobs for which a four-year degree is not needed.

Finally, the administrator overlooks the possibility that the job-op program is oriented toward the needs of students at technical schools. A job-op program that successfully places technical students might not be as successful in placing graduates of four-year universities, because the types of jobs the two groups of graduates typically seek and would qualify for are quite different.

In conclusion, the argument is unconvincing as it stands. To strengthen it the administrator must show that one of Waymarsh's academic goals is to place its new graduates in jobs. The administrator must also show that this job-op program is equally successful in placing university graduates as it is in placing technical-school graduates. To better evaluate the argument we would need more information about the extent to which the job-op program is actually responsible for the successful job placement rate among Plateau's graduates.

Argument 98

The following appeared in a memorandum from the new president of the Patriot car manufacturing company.

"In the past, the body styles of Patriot cars have been old-fashioned, and our cars have not sold as well as have our competitors' cars. But now, since many regions in this country report rapid increases in the numbers of newly licensed drivers, we should be able to increase our share of the market by selling cars to this growing population. Thus, we should discontinue our oldest models and concentrate instead on manufacturing sporty cars. We can also improve the success of our marketing campaigns by switching our advertising to the Youth Advertising agency, which has successfully promoted the country's leading soft drink."

In this memo the president of Patriot car manufacturing argues that in order to increase its market share Patriot should (1) discontinue its older models, which look "old-fashioned" and have not been selling well, (2) begin manufacturing sporty models, and (3) hire Youth Advertising agency, which has successfully promoted the country's leading soft drink. To justify this recommendation the president points out that many regions report a rapid increase in the number of newly licensed drivers. However, this argument relies on several dubious assumptions, and is therefore unpersuasive.

To begin with, the president's argument relies on certain unproven assumptions about the reports of a sharp increase in the number of newly licensed drivers. First, the argument assumes that the reports are accurate, and that these regions account for a statistically significant portion of Patriot's potential buyers. Secondly, the president overlooks the possibility that in other regions that number is actually declining, so that there is no net increase at all.

Even assuming that the reports are accurate and the regions cited are representative of the overall territory in which Patriot cars are marketed, the president concludes too hastily that newly licensed drivers will tend to favor new cars over used ones, and to favor Patriot's sporty new cars over other manufacturers' new vehicles. The president ignores the likelihood that the vast majority of new drivers are teenagers who cannot afford new sports cars, or new cars of any kind. Even teenagers who can afford new sports cars might prefer other manufacturers' cars--perhaps due to Patriot's old-fashioned image. Lacking evidence that new drivers who buy cars will tend to buy Patriot sports cars, the president cannot convince me that the recommended course of action will increase Patriot's market share.

Finally, the fact that Youth has successfully promoted the country's leading soft drink amounts to scant evidence that Youth would also be successful in promoting Patriot cars. Marketers that are effective in one industry are not necessarily effective in another. Besides, the president unfairly assumes that Patriot's current advertising agency is partly responsible for Patriot's relatively small market share. Perhaps some other factor--such as poor management, distribution, or pricing decisions--is the true reason for Patriot's market-share problem. Moreover, perhaps Youth would be less effective than Patriot's current ad agency. Thus switching to Youth will not necessarily improve Patriot's market share--and might even result in a decline in that share.

In sum, the president's recommendation is weak. To strengthen it the president must show that the reports are a reliable indicator of the overall change in the number of newly licensed drivers. The president must also provide dear evidence--perhaps by way of a reliable survey--that a sufficient percentage and number of new drivers who are able and willing to buy new cars will choose Patriot's sports cars over other manufacturers' cars, so that Patriot's overall market share will increase. To better assess the recommendation that Patriot switch to Youth, I would need to know the extent to which Patriot's current ad strategy is responsible for Patriot's market-share problems; then I would need to know Youth's experience and success record in the car industry--relative to that of Patriot's current agency as well as other available agencies.

Argument 99

The following appeared in a memorandum from the owner of Armchair Video, a chain of video rental stores.

"Because of declining profits, we must reduce operating expenses at Armchair Video's ten video rental stores. Raising prices is not a good option, since we are famous for our special bargains. Instead, we should reduce our operating hours. Last month our store in downtown Marston reduced its hours by closing at 6:00 P.M. rather than 9:00 P.M. and reduced its overall inventory by no longer stocking any film released more than two years ago. Since we have received very few customer complaints about these new policies, we should now adopt them at all other Armchair Video stores as our best strategies for improving profits."

In this memo the owner of Armchair Video concludes that in order to boost sagging profits Armchair's stores should eliminate evening operating hours and should stock only movies that are less than two years old. To support this conclusion the owner points out that since

Armchair's downtown Marston store implemented these changes, very few customers have complained. The owner's argument relies on several unsubstantiated assumptions, and is therefore unconvincing as it stands.

In the first place, implicit in the argument is the assumption that no other means of boosting profits is available to Armchair. While the owner has explicitly ruled out the option of raising its rental rates, the owner ignores other means, such as selling videos, or renting and selling compact discs, candy, and so forth. Without considering such alternatives, the owner cannot justifiably conclude that the proposed changes are the only ways Armchair can boost its profits.

A second problem with the argument is that it assumes that the proposed changes would in fact enhance profits. It is entirely possible that the lost revenue from reducing store hours would outweigh the savings in reduced operating costs. Perhaps Armchair customers are attracted to the stores' wide selection and Variety of movies, and that Armchair would lose their patronage should it reduce its inventory. Moreover, common sense informs me that video rental stores do most of their business during evening hours, and therefore that the proposed action would actually result in a further decline in profits.

Two additional problems involve the downtown Marston store. First, the owner implicitly assumes that the store has increased its profits as a result of eliminating evening operating hours and stocking only newer movies. Yet the owner provides no evidence to support this assumption. One cannot infer from the mere fact that the store's patrons have not complained that the store's business, and in turn profits, have increased as a result of these changes.

A second problem with Marston is that the owner assumes this store is representative of Armchair outlets generally. It is entirely possible that, due to its downtown location, the Marston store attracts a daytime clientele more interested in new movies, whereas other outlets depend on an evening clientele with different or more diverse tastes in movies. Or perhaps downtown Marston lacks competing video stores or movie theaters, whereas Armchair's other stores are located in areas with many competitors. Without accounting for such possibilities, the owner cannot convince me that the profits of other Armchair outlets would increase by following Marston's example.

In conclusion, the argument is unconvincing as it stands. To strengthen it the owner must provide strong evidence that the cost savings of the proposed course of action would outweigh any loss in revenue, and that no other viable means of boosting its profits is available to Armchair. To better evaluate the argument we would need information enabling us to compare the Marston store's clientele and competition with that of other Armchair stores. We would also need more information about Marston's profitability before and after it implemented the new policies.

Argument 100

In each city in the region of Treehaven, the majority of the money spent on government-run public school education comes from taxes that each city government collects. The region's cities differ, however, in the value they place on public education. For example, Parson City typically budgets twice as much money per year as Blue City does for its public schools---even though both cities have about the same number of residents. It seems clear, therefore, that

Parson City residents care more about public school education than do Blue City residents.

This argument concludes that Parson City residents value public-school education more highly than Blue City residents do. To justify this conclusion the argument points out that in both cities the majority of funds for public schools comes from taxes, and that Blue City budgets only half as much money per year for its public schools as Parson City, even though the population in both cities is about the same. The argument relies on a series of unsubstantiated assumptions, which considered together render the argument wholly unconvincing.

One such assumption is that the total budget for the two cities is about the same. It is entirely possible that Blue City's total budget is no more than half that of Parson City. If so, then the fact that Blue City budgets only half as much as Parson City for its public schools would suggest at least the same degree of care about public-school education among Blue City's residents as among Parson City's residents.

Even if Parson City devotes a greater percentage of its budget each year for its schools, the argument relies on the additional assumption that this percentage is a reliable indicator of the value a city's residents place on public-school education. Yet it is entirely possible, for example, that Blue City's schools are already well funded, or that Blue City has some other, extremely urgent problem which requires additional funding despite a high level of concern among its residents about its public schools. Absent evidence that the two city's various needs are similar, any comparison between the level of concern about public schools among residents in the two cities based simply on funds spent for public schools is dubious at best.

A third assumption upon which the argument rests is that the percentage of residents who attend public schools is about the same in both cities. The argument indicates only that the total population of the two cities is about the same. If a comparatively small percentage of Blue City residents attend public schools, then the comparatively small amount of money Blue City devotes to those schools might be well justified despite an equal level of concern about the quality of public-school education among residents in the two cities.

Finally, although the argument states that in both cities "the majority" of money spent on public schools comes from taxes, perhaps the actual percentage is smaller in Blue City than in Parson City, and other such funds come from residents' donations, earmarked for public education. Compliance with tax laws is scant evidence of taxpayer support of public-school education, while voluntary giving is strong evidence. Thus it is possible that Blue City residents donate more money per capita for public-school education than Parson City residents do. If so, this fact would seriously weaken the argument that Blue City residents place a comparatively low value on public-school education.

In sum, the argument is unpersuasive as it stands. To strengthen it the argument's proponent must provide clear evidence that the percentage of the budget allotted to public schools, as well as the percentage of money spent on public schools and derived from taxes, is about the same in both cities. To better assess the argument I would need to compare the neediness of Blue City's public schools with that of Parson's public schools. I would also need more information about other urgent financial needs in each city, and about the other sources of the money applied toward public-school education in each city.

Argument 101

The following appeared in a letter to the Grandview City Council from a local business leader.

"During last year's severe drought, when the water supply in the Grandview city reservoir fell to an extremely low level, the city council imposed much more rigid water-rationing rules. But just after these rules were imposed, industrial growth in the area declined. This clearly shows that the new rationing rules have hurt industry in Grandview. Therefore, to promote the health of the local economy, the city council should now stop water rationing."

In this letter a Grandview City business leader concludes that in order to promote economic health the city must abolish the water-rationing rules it implemented during last year's drought. To support this conclusion the letter's author points out that since the city implemented these rules industrial growth in the area has declined. However, this argument contains several logical problems, which render it unconvincing as it stands.

First of all, the argument relies on two threshold assumptions: that people who use the city's water have complied with the rules, and that area industry is subject to the rules in the first place. Yet the author supplies no evidence to substantiate either assumption. In other words, if area industries have not in fact been rationing water, the author's conclusion that water rationing is a contributing cause of the recent decline in industry growth would be indefensible.

A second problem with the argument is that it overlooks other possible explanations for the decline in industry growth. Perhaps the decline is the result of a general economic recession that has also impacted businesses in areas not subject to water rationing. Or perhaps local or state regulations unrelated to water rationing are instead responsible for the slowdown. Without accounting for such possibilities, the author cannot justify the conclusion that the water rationing is the cause of the slowdown.

A third problem with the argument is that it unjustifiably assumes that stopping water rationing would help reverse the decline in industry growth. It is entirely possible that this course of action would actually exacerbate the decline. Specifically, perhaps the lack of water has been the primary factor in the slowdown. If so, and if the rationing stops, water might become even more scarce depending on current drought conditions, in which case the slowdown would worsen.

In conclusion, the argument is unconvincing as it stands. To strengthen it the business leader must provide strong evidence that no other factors were responsible for the slow down in industry growth, and that industry has complied with the rules in the first place. Finally, to better evaluate the argument we would need more information about current water availability in the area, so that we can assess how stopping water rationing would affect this availability.

Argument 102

The following appeared in a magazine article about planning for retirement.

"Because of its spectacular natural beauty and consistent climate, Clearview should be a top choice for anyone seeking a place to retire. As a bonus, housing costs in Clearview have fallen significantly during the past year, and real estate taxes remain lower than those in neighboring towns. Nevertheless, Clearview's mayor promises many new programs to improve schools,

streets, and public services. Retirees in Clearview can also expect excellent health care as they grow older, since the number of physicians in the area is far greater than the national average."

This article argues that anyone seeking a place to retire should choose Clearview. To support this argument the article cites Clearview's consistent climate and natural beauty; its falling housing costs; its low property taxes compared to nearby towns; and the mayor's promise to improve schools, streets, and services. The article also claims that retirees can expect excellent health care because the number of physicians in Clearview greatly exceeds the national average. This argument is flawed in several critical respects.

To begin with, although consistent climate and natural beauty might be attractive to many retirees, these features are probably not important to all retirees. For many retirees it is probably more important to live near relatives, or even to enjoy changing seasons. Thus I cannot accept the author's sweeping recommendation for all retirees on this basis.

Also, Clearview's declining housing costs do not necessarily make Clearview the best place to retire for two reasons. First, despite the decline Clearview's housing costs might be high compared to housing costs in other cities. Secondly, for wealthier retirees housing costs are not likely to be a factor in choosing a place to retire. Thus the mere fact that housing costs have been in decline lends scant support to the recommendation.

The article's reliance on Clearview's property-tax rates is also problematic in two respects. First, retirees obviously have innumerable choices about where to retire besides Clearview and nearby towns. Secondly, for retirees who are well-off financially property taxes are not likely to be an important concern in choosing a place to retire. Thus it is unfair to infer from Clearview's property-tax rates that retirees would prefer Clearview.

Yet another problem with the argument involves the mayor's promises. In light of Clearview's low property-tax rates, whether the mayor can follow through on those promises is highly questionable. Absent any explanation of how the city can spend more money in the areas cited without raising property taxes, I simply cannot accept the editorial's recommendation on the basis of those promises. Besides, even if the city makes the improvements promised, those improvements--particular the ones to schools--would not necessarily be important to retirees.

Finally, although the number of physicians in Clearview is relatively high, the per capita number might be relatively low. Moreover, it would be fairer to compare this per capita number with the per capita number for other attractive retirement towns--rather than the national average. After all, retirees are likely to place a relatively heavy burden on health-care resources. Besides, the article provides no assurances that the number of physicians in Clearview will remain high in the foreseeable future.

In conclusion, the recommendation is poorly supported. To strengthen it the author must convince me--perhaps by way of a reliable survey--that the key features that the vast majority of retirees look for in choosing a place to live are consistent climate, natural beauty, and low housing costs. The author must also provide better evidence that Clearview's property taxes are lower than the those of cities in other areas. The author must also explain how the city can make its promised improvements without raising property taxes. Finally, to better assess the argument I would need to know how the per capita number of physicians in Clearview would compare to the national average in the future.

Argument 103

The following appeared in a brochure promoting the purchase of local franchises for a national chain of gyms.

"Now is the time to invest in a Power-Lift Gym franchise so that you can profit from opening one of our gyms in your town. Consider the current trends: Power-Lift Gyms are already popular among customers in 500 locations, and national surveys indicate increasing concern with weight loss and physical fitness. Furthermore, last year's sales of books and magazines on personal health totaled more than \$50 million, and purchases of home exercise equipment almost doubled. Investing now in a Power-Lift Gym franchise will guarantee a quick profit."

This brochure for Power-Lift Gym da/ms that by investing in a Power-Lift franchise an investor will earn a quick profit. To support this claim the brochure cites a variety of statistics about the current popularity of physical fitness and of Power-Lift Gyms in particular. However, careful scrutiny of this evidence reveals that it lends no credible support to the claim.

One problem with the brochure's claim involves its reliance on the bare fact that revenue from last year's sales of health books and magazines totaled \$50 million. This statistic in itself proves nothing. Health magazines do not all focus on weightlifting or even physical fitness; it is possible that very few sales were of those that do. Besides, it is entirely possible that in previous years total sales were even higher and that sales are actually declining. Either scenario, if true, would serve to weaken the brochure's claim rather than support it.

Another problem with brochure's claim involves the fact that more and more consumers are purchasing home gyms. It is entirely possible that consumers are using home gyms as a substitute for commercial gyms, and that the number of Power-Lift memberships will decline as a result. Without ruling out this possibility, the brochure cannot convince me that a new Power-Lift franchise would be profitable.

A third problem with the brochure's claim involves its reliance on the fact that 500 Power-Lift franchises are now in existence. It is entirely possible that the market has become saturated, and that additional Power-Lift gyms will not be as successful as current ones. Moreover, it is possible that the number of competing gyms has also increased in tandem with the general interest in health and fitness. Without addressing this supply-and-demand issue, the brochure cannot justify its conclusion that a new Power-Lift franchise would be a sound investment.

In conclusion, the brochure is unpersuasive as it stands. To strengthen its claim that a new Power-Lift franchise would be profitable, the brochure should provide stronger evidence that the general interest in physical fitness, and weightlifting in particular, will continue unabated in the foreseeable future. The brochure must also provide evidence that home gyms are not serving as substitutes for commercial gyms. Finally, to better evaluate the argument we would need more information about the extent to which the fitness-gym market has become saturated, not only by Power-Lift franchises but by competing gyms as well.

Argument 104

The following appeared in a memorandum from the president of Hyper-Go Toy Company.

"Last year, sales of our Fierce Fighter toy airplane declined sharply, even though the toy had been a top seller for three years. Our customer surveys show that parents are now more worried about youthful violence and are concerned about better education for their children. Therefore, to maintain profits we should discontinue all our action toys and focus exclusively on a new line of educational toys. Several other toy companies have already begun marketing educational toys and report sales increases last year of 200 percent. And since the average family income is growing, sales of new Hyper-Go toys should also increase."

In this memo the president of Hyper-Go Toy Company (HG) argues that in order to maintain profitability the company should discontinue its complete line of action toys and focus exclusively on a new line of educational toys. To support this argument the president cites the dramatic decline in sales of HG's Fierce Fighter (FF) toy airplane, which during the previous three years had been a top seller, and an HG customer survey indicating increasing concern among parents about youth violence and for improving their children's education. The president also points out that several other toy companies have begun marketing educational toys and report a 200% increase in overall sales, and that the average family income is growing. The president's argument relies on several doubtful assumptions and is therefore unpersuasive.

First, the president's assumption that parental concern about youth violence is the cause of declining FF sales might be unwarranted. The decline might have been caused by one or more other factors--such as supply or distribution problems, new competing products from other toy companies, or a waning of interest in FF among children. Without ruling out these and other possible reasons for the decline, the president's argument seems ill-conceived.

Secondly, the results of HG's customer survey are not necessarily representative of the overall population of toy-buying parents. Perhaps HG's current customers are more concerned about youth violence and education than most parents. If so, then the president has overlooked the possibility that a substantial portion of HG's target market would not react favorably to the proposed changes.

Thirdly, perhaps sales of HG's other action toys remained stable or even increased last year. In fact, it is entirely possible that some of HG's other toys are becoming very popular and will soon replace FF as top sellers. If so, then discontinuing the entire line would be ill-advised indeed.

Fourth, assuming the toy companies that saw a 200% sales increase last year are statistically representative of toy companies in general, that increase might be due to action-toy sales rather than to educational-toy sales. If so, then the statistic would amount to scant support for the proposed course of action.

Finally, the mere fact that average family income is growing provides little assurance that the proposed changes would increase HG's sales. Perhaps the average income of families without young children is growing, but for families with young children who buy toys it is shrinking. For that matter, perhaps average family expenses are also growing, so that families have even less discretionary income than before. Without ruling out these possibilities, the president cannot justify the proposed changes on the basis of the growth of average family income.

In sum, the president's argument is unconvincing as it stands. To strengthen it the president must show that parents in general, not just HG customers, are concerned about youth violence

and education, and that these concerns are the reason for declining FF sales. To better assess the argument I would need more information about sales trends of HG's other action toys, and about the types of toys that have contributed to the 200% increase in sales for the other toy companies.

Argument 105

The following appeared in a memorandum from a vice president of the Megamart department store chain.

"For the third year in a row, the average household income in our country has risen significantly. That prosperity means that families are likely to be spending more time and money on leisure activities. Megamart stores should therefore concentrate on enlarging and promoting its line of products typically used in leisure activities: athletic and outdoor equipment, televisions, gourmet cooking equipment, and luggage and travel accessories."

In this memo the vice president of Megamart concludes that Megamart should expand its line of products related to leisure activities. To support this claim the memo points out that for three years in a row the average household income nationwide has risen. However, close inspection of the argument reveals several logical problems, which render it unconvincing as it stands.

First of all, the claim relies on two threshold assumptions about rising income. One is that this trend will continue in the future; if it does not then the proposed course of action is unlikely to result in increased profits for Megamart. The other threshold assumption is that the cost of living is not also increasing at least at a commensurate rate. Yet it is entirely possible that living costs have risen to meet or even exceed the rise in income.

If so, Megamart would in all likelihood sell fewer leisure products than otherwise. Even assuming that discretionary income is rising and will continue to rise, the argument relies on the additional assumption that people will spend this discretionary income on leisure products. However, the memo provides no evidence to substantiate this assumption. Perhaps people are increasing their savings rather than spending their additional income. If so, this fact would significantly undermine the vice president's claim that demand for leisure products is increasing, and therefore that Megamart would benefit by offering more such products.

Yet another problem with the argument involves the reason why average income has risen in the first place. It is entirely possible that income has risen because people have been working more hours. If so, then in all likelihood people have less leisure time, in which case they will not spend more money on leisure products--simply because they have less time for leisure pursuits. Without addressing this issue, the vice president cannot convince me that Megamart should expand its line of leisure products.

In conclusion, the vice president's argument is unconvincing as it stands. To strengthen it the vice president must provide strong evidence that discretionary income is rising and will continue to rise. The vice president must also show that people will in fact choose to spend this income on leisure products, and that people have enough free time for leisure pursuits in the first place.

Argument 106

The following appeared in an article in a magazine for writers.

"A recent study showed that in describing a typical day's conversation, people make an average of 23 references to watching television and only 1 reference to reading fiction. This result suggests that, compared with the television industry, the publishing and bookselling industries are likely to decline in profitability. Therefore, people who wish to have careers as writers should acquire training and experience in writing for television rather than for print media."

This article cites a recent study showing that during a typical day people make an average of 23 references to watching television but only one reference to reading fiction. From these statistics the author reasons that the television industry must be far more profitable than the book-publishing industry, then concludes that people seeking careers in writing should acquire training and experience in television writing. This argument is flawed in several critical respects.

First of all, the article's author has not shown the study upon which the argument depends to be statistically reliable. The people studied must be representative of the overall population of people who buy books and watch television; otherwise the author cannot draw any firm conclusions about the comparative profitability of the television and book publishing industries based on the study's results.

Secondly, the author's argument depends on the assumption that the frequency with which a person refers in conversation to television, or to fiction books, is a good indication of how much television a person watches, or how many fiction books a person reads. Yet this is not necessarily the case. Perhaps people tend to refer many times in daily conversation to the same television show. If so, then the statistics cited would overstate the amount of television people watch compared to the number of fiction books they read.

Thirdly, even if the statistics cited accurately reflect the amount of television people watch compared to the number of fiction books they read, it would be hasty to infer based merely on this fact that the television industry is more profitable than the book-publishing industry. To begin with, the study's results excluded any data about nonfiction books--a category that might very well constitute book publishers' main profit source. Moreover, the author has not shown any correlation, let alone a cause-and-effect relationship, between the number of hours a person spends watching television and that industry's profits. In any event, lacking financial statistics about the profitability of the two industries the editorial's author cannot convince me that writers should follow the author's recommendation.

Finally, even assuming that the television industry is more profitable than the book-publishing industry, the author's implicit claim that television writers enjoy more secure and lucrative careers than book writers is without support. It is entirely possible that television writers are paid comparatively low wages; in fact, low writer compensation might partially explain why the television industry is relatively profitable. Without better evidence that television writers are better off than book writers it might be folly to follow the author's recommendation.

In sum, the argument relies on several poor assumptions and is therefore unconvincing as it

stands. To strengthen it the article's author must provide clear evidence that the study's subjects reflect the overall population, and that their conversational habits accurately reflect how much television they watch compared to how many books they read. The author must also show that the disparity between the two contributes to far greater financial rewards for the television industry, as well as for its writers, than for the book publishing industry and its writers.

Argument 107

The following article appeared in a recent issue of a college newspaper.

"Among all students who graduated from Hooper University over the past five years, more physical science majors than social science majors found permanent jobs within a year of graduation. In a survey of recent Hooper University graduates, most physical science majors said they believed that the prestige of Hooper University's physical science programs helped them significantly in finding a job. In contrast, social science majors who found permanent employment attributed their success to their own personal initiative. Therefore, to ensure that social science majors find permanent jobs, Hooper University should offer additional social science courses and hire several new faculty members who already have national reputations in the social sciences."

This article concludes that in order to help its new social-science graduates find permanent jobs Hooper University should enhance its reputation in this field by adding courses and hiring eminent faculty. To support this claim the letter points out that more physical science than social-science students find permanent jobs within a year after graduation. The letter also cites a survey in which the former group of graduates attributed their job finding success to the prestige of Hooper's physical science department, while the latter group attributed their job-finding success to their own initiative. However, careful scrutiny of the argument reveals various statistical and other logical problems, which render it unconvincing.

To begin with, the survey that the argument cites is potentially problematic in three respects. First, we are not informed whether the survey's respondents were representative of the overall population of recent Hooper graduates in these two fields. The smaller the sample, the greater the possibility for biased results, and the less reliable the survey. Second, the survey reflects the graduates' subjective "beliefs" about why they obtained jobs; yet it is entirely possible these beliefs are not in accord with the true reason why they obtained jobs. Third, we are informed that the survey involved "recent" Hooper graduates; however, if the only graduates surveyed were those from last year's class, then the survey results would be less reliable than if the survey embraced a wider range of graduating classes. The smaller the range the less reliable any general conclusions drawn from the survey.

Even assuming the statistics that the letter cites are reliable, the letter's claim that the proposed course of action will achieve its intended result assumes a sufficient job market for social-science graduates. However, it is entirely possible that the number of jobs for physical-science graduates greatly exceeds the number of jobs for social-science graduates, and that this is the reason for the disparity in job-finding success between the two groups. In fact, real-world observation suggests that this is a reasonable explanation for the disparity.

Moreover, the letter fails to account for the possibility that the latter group of graduates are less likely than the former group to be interested in immediate employment--electing instead to pursue graduate-level study. Without accounting for these possibilities, the letter's author cannot justifiably conclude that the proposed course of action will boost the employment rate of new social-science graduates.

A third problem with the argument is that it unfairly infers that the proposed course of action is the only means of achieving the desired result. The letter's author overlooks other possible means of ensuring that social-science students find immediate employment--such as co-op programs, job seminars, and so forth. Without ruling out alternative means of achieving the same goal, the author cannot convince me that the proposed course of action is needed.

In conclusion, as it stands the argument is unconvincing. To strengthen it the author must provide strong evidence that the survey's respondents were statistically representative of all recent Hooper graduates in these two fields of study. The author must also rule out all other possible explanations for the disparity between job-finding success between the two groups of Hooper graduates. Finally, to better evaluate the argument I would need more information about the portion of graduates in each field pursuing immediate employment, and what alternative means are available to help ensure that Hooper's new social-science graduates find permanent employment.

Argument 108

The following appeared in a corporate planning memo at ABC Cereal Company, the makers of Better Bran cereal.

"Sales of Better Bran have declined in recent years, for reasons that management has now identified. First, Better Bran is a cereal with high sugar content, and recent research studies have found that most consumers say they are concerned about the amount of sugar added to their breakfast cereal. Second, the price of Better Bran has increased by 5% in each of the last three years. Therefore, to increase our company's profits we need to reduce the amount of sugar in Better Bran and lower Better Bran's price."

This ABC Cereal Company memo concludes that to increase its profitability ABC must lower both the sugar content and price of its Better Bran (BB) cereal. To justify this conclusion the memo cites the fact that sales of BB have declined in recent years. The memo attributes this decline to a concern among most consumers about the amount of sugar in their cereals, and to the 5% increase in the price of BB during each of the last three years. The memo is unconvincing for several reasons.

First, the mere fact that most consumers are concerned about sugar in cereal amounts to scant evidence that the decline in BB sales is due to that concern. The level of concern, or the amount of sugar in BB, might not be sufficiently high to cause consumers to stop buying BB cereal on either basis. Moreover, unless the level of concern has grown during recent years I cannot take seriously the claim that declining BB sales in recent years is due to that concern--rather than to some other event or trend.

Secondly, assuming that the 5% price increases have contributed to the decline in BB sales, it would be premature to conclude that profits from BB sales have also declined as a result.

Perhaps the additional revenue from the price increases more than offset the decline in revenue due to the diminishing number of units sold. Thus ABC cannot convince me on the basis of the price increases and the sales decline that lowering BB's price would serve to improve ABC's overall profitability.

Thirdly, the memo's recommendation rests on the dubious assumption that the proposed actions are the only two means of increasing ABC's overall profitability. In all likelihood, ABC's profits are a function not only of how many boxes of BB it sells but also of its costs and its revenue from other products. Perhaps ABC can improve its profits by other means--such as expanding its cereal line, marketing BB to health-conscious consumers and raising the price of BB, or cutting costs in other areas. For that matter, if other cereal companies raise their prices, consumers might begin to consider BB a bargain at its current price--or perhaps even at a somewhat higher price. In short, since the memo has not ruled out all other possible scenarios that might serve to improve ABC's overall profitability I simply cannot take the memo's recommendation seriously.

Finally, even in the unlikely event that one of the two proposed changes is necessary to increase ABC's overall profitability, the memo's assertion that both changes are necessary might nevertheless be unwarranted. Perhaps only one of the two changes will suffice. Since the memo ignores this possibility the strength of its recommendation remains questionable at best.

In sum, ABC might be ill-advised to follow the memo's advice. To strengthen the argument that ABC must lower BB's price and sugar content to improve profitability, ABC's planners must provide clear evidence that consumer concern about sugar in cereals is the primary reason for declining BB sales, and that this decline has diminished BB's profitability. To better assess ABC's claim that the proposed course of action is necessary to improve ABC's profitability, I would need to know what other alternatives, if any, are available to ABC for cutting costs and for increasing revenue.

Argument 109

The following appeared as part of a letter to the editor of a local newspaper.

"During her three years in office, Governor Riedeburg has shown herself to be a worthy leader. Since she took office, crime has decreased, the number of jobs created per year has doubled, and the number of people choosing to live in our state has increased. These trends are likely to continue if she is reelected. In addition, Ms. Riedeburg has promised to take steps to keep big companies here, thereby providing jobs for any new residents. Anyone who looks at Ms. Riedeburg's record can tell that she is the best-qualified candidate for governor."

This letter concludes that Governor Riedeburg is the best-qualified candidate for the job of state governor. To justify this conclusion the letter points out various statewide trends since the governor was elected, and the fact that she has promised to keep big companies in the state, thereby providing jobs for any new residents. However, close scrutiny of the argument reveals various logical problems, which render it unconvincing.

One problem with the argument is that the letter's author might be assigning a false cause to these statewide trends. The author provides no evidence that Riedeburg's policies and actions

as governor were indeed the reason for these developments. Without such evidence, it is equally possible that other factors are instead responsible for the trends. For instance, perhaps the crime rate has declined due to legislative or judicial action over which Riedeburg had no control. Perhaps the rise in the state's population is the result of sociological trends that have nothing to do with Riedeburg's policies as governor. Or perhaps people are moving to the state for other reasons, such as the state's climate. Moreover, the argument assumes that an increase in population is a positive development in the first place; yet it is entirely possible that the state's residents properly view this trend as a negative one. If so, and if Riedeburg's policies have contributed to this trend, then the author cannot reasonably conclude based on this evidence that Riedeburg is the best-qualified candidate.

Another problem with the argument involves Riedeburg's promise to keep big companies in the state, thereby providing jobs for any new residents. Assuming that Riedeburg keeps her promise in the first place, the author provides no evidence that these employers would be either willing or able to hire new residents. Perhaps these employers plan to curtail new hiring in any event; or perhaps they plan to hire new employees only among current state residents. Moreover, whether these employers are able to hire new employees depends on a variety of extrinsic economic factors over which Riedeburg might have no control. Without accounting for these possibilities, the author cannot rely on Riedeburg's promise to conclude that she is the best-qualified candidate for the job of state governor.

Finally, the author's conclusion that Riedeburg is "the best-qualified candidate" raises two problems in itself. First, regardless of Riedeburg's record as governor it is entirely possible that one or more other candidates are actually better qualified. Second, the letter fails to adequately define what makes a candidate for state governor qualified. Without indicating what the ideal qualifications would be and ruling out the possibility that an other candidate better meets these qualifications, the author cannot make a convincing case that Riedeburg is the best-qualified candidate.

In conclusion, the argument is unpersuasive as it stands. To strengthen it the author must provide clear evidence that it was Riedeburg who was responsible for the current trends, and that the current population trend is desirable in the first place. The author must also show that the state's major employers would be willing and able to hire new residents in the future. Finally, to better evaluate the argument we would need more information about what defines an ideal governor and how well other candidates meet that definition.

Argument 110

The following appeared as part of a memo from the manager of an automobile manufacturing company.

"Because the demand for our automobiles is expected to increase dramatically, we need to open a new manufacturing plant as soon as possible in order to continue to thrive. Our marketing projections indicate that 80 million people will want to buy our automobiles, yet our existing plant can only produce 40 million automobiles. The new plant can be opened on a part-time basis, with workers from our existing site rotating responsibilities, until an operational staff can be trained. A major airplane manufacturer was extremely successful using this part-time rotating strategy when it opened its new plant five years ago."

In this memo the manager of a car manufacturing company argues that the company must add a second plant in order to continue to thrive. To support this argument the manager points out that its existing plant can only produce 40 million cars, but that according to company projections 80 million people will want to buy the company's cars. The manager claims that the company can achieve its objective by operating the new plant on a part-time basis using workers from the existing plant on a rotational basis. To support this claim the manager points out that a certain airplane manufacturing company employed this strategy successfully five years ago. The manager's argument is problematic in several critical respects.

First of all, the manager assumes that no course of action other than the proposed one will ensure that the company continues to thrive; yet the manager fails to substantiate this assumption. Since demand is expected to be very high, perhaps the company can continue to thrive simply by raising the price of its cars. For that matter, perhaps the company can continue to thrive if it makes no changes at all. Without accounting for either possibility the manager cannot convince me that building a second plant is necessary.

Secondly, even if building a second plant is necessary for the company to continue to thrive, in itself this course of action might not suffice. After all, how can the manager reasonably expect that a second plant will produce as many cars as the existing one if it operates on only a part-time basis? And if the new plant borrows labor from the existing plant then production at the existing plant might decline. Thus unless the manager can convince me that the new plant will be far more efficient than the current plant I do not see any way that operating a new plant on a part-time basis can double the company's production.

Finally, the mere fact that one certain airplane manufacturer adopted a similar plan with some success is scant evidence that this car company will succeed if it follows the manager's plan. The memo provides no information about how many airplanes the airplane manufacturer produced. Nor does the memo identify what constituted "success" for the airplane manufacturer. Perhaps that company considered itself successful by producing only an additional 10% more airplanes, or by merely managing to avoid bankruptcy. In short, as it stands the anecdotal evidence about the airplane company is far too vague to lend meaningful support to the manager's argument.

In sum, the manager's plan seems ill-conceived. To strengthen the argument that the company must add a second plant to continue to thrive, the manager must at the very least convince me that the company has no alternative means of achieving this objective. The manager should also provide evidence that operating a new plant on only a part-time basis would suffice to double production--perhaps by showing that the new plant would employ newer, more efficient equipment than the existing plant. To better assess the argument it would be useful to know what constituted "success" for the airplane manufacturer and, more specifically, the percentage by which that company increased production as a result of adding a second plant.

Argument 111

The following appeared as an editorial in a local newspaper.

"In order to attract visitors to Central Plaza downtown and to return the plaza to its former glory,

the city should prohibit skateboarding there and instead allow skateboarders to use an area in Monroe Park. At Central Plaza, skateboard users are about the only people one sees now, and litter and defaced property have made the plaza unattractive. In a recent survey of downtown merchants, the majority supported a prohibition on skateboarding in the plaza. Clearly, banning skateboarding in Central Plaza will make the area a place where people can congregate for fun or for relaxation."

This editorial concludes that the city should ban skateboarding from its downtown Central Plaza in order to attract visitors to that area, to return the area to its "former glory," and to make it "a place where people can congregate for fun and relaxation." To justify this conclusion the editorial points out that skateboarders are nearly the only people one sees anymore at Central Plaza, and that the Plaza is littered and its property defaced. The editorial also points out that the majority of downtown merchants support the skate boarding ban. This argument is flawed in several critical respects.

First, the editorial's author falsely assumes that a ban on skateboarding is both necessary and sufficient to achieve the three stated objectives. Perhaps the city can achieve those objectives by other means as well—for example, by creating a new mall that incorporates an attractive new skateboard park. Even if banning skateboarders altogether is necessary to meet the city's goals, the author has not shown that this action by itself would suffice. Assuming that the Plaza's reputation is now tarnished, restoring that reputation and, in turn, enticing people back to the Plaza might require additional measures—such as removing litter and graffiti, promoting the Plaza to the public, or enticing popular restaurant or retail chains to the Plaza.

Secondly, the editorial assumes too hastily that the Plaza's decline is attributable to the skateboarders—rather than to some other phenomenon. Perhaps the Plaza's primary appeal in its glory days had to do with particular shops or eateries, which were eventually replaced by less appealing ones. Or perhaps the crime rate in surrounding areas has risen dramatically, for reasons unrelated to the skateboarders' presence at the Plaza. Without ruling out these and other alternative explanations for the Plaza's decline, the editorial's author cannot convince me that a skateboard ban would reverse that decline.

Thirdly, the editorial's author might be confusing cause with effect—by assuming that the skateboarders caused the abandonment of the Plaza, rather than vice versa. It is entirely possible that skateboarders did not frequent the Plaza until it was largely abandoned—and because it had been abandoned. In fact this scenario makes good sense, since skateboarding is most enjoyable where there are few pedestrians or motorists to get in the way.

Fourth, it is unreasonable to infer from the mere fact that most merchants favor the ban that the ban would be effective in achieving the city's objectives. Admittedly, perhaps these merchants would be more likely to help clean up the Plaza area and promote their businesses were the city to act in accordance with their preference. Yet lacking any supporting evidence the author cannot convince me of this. Thus the survey amounts to scant evidence at best that the proposed ban would carry the intended result.

Finally, the author recommends a course of action that might actually defeat the city's objective of providing a fun and relaxing place for people to congregate. In my experience skateboarding contributes to an atmosphere of fun and relaxation, for adults and children alike, more so than many other types of ambiance. Without considering that continuing to allow

skateboarding--or even encouraging this activity--might achieve the city's goal more effectively than banning the activity, the author cannot convincingly conclude that the ban would be in the city's best interests.

In sum, the argument is a specious one. To strengthen it, the editorial's author must provide dear evidence that skateboarding, and not some other factor, is responsible for the conditions marking the Plaza's decline. The author must also convince me that no alternative means of restoring the Plaza are available to the city, and that the proposed ban by itself would suffice to attract tourists and restore the Plaza to its former glory. Finally, to better assess the argument it would be useful to know the circumstances under which the downtown merchants would be willing to help the city achieve its objectives.

Argument 112

The following appeared in a newsletter from a political organization.

"In order to promote economic growth in the city, city residents should vote 'yes' on the state government's proposal to build a new expressway linking the outlying suburbs directly to the city center. A direct link to the city center will enable downtown businesses to receive deliveries more frequently, so that downtown retailers will no longer run out of stock and city manufacturers will not be affected by shortages of materials. Booming businesses will attract qualified workers from all over the state, workers who will be able to take advantage of the new expressway to commute to work in our city. In addition to these advantages, hundreds of workers will be employed to build the expressway, further stimulating the local economy!"

In this newsletter the author concludes that, in order to promote the economic health of the city's downtown area, voters should approve the construction of an expressway linking downtown to outlying suburbs. To support this conclusion the author claims that the expressway would alleviate shortages of stock and materials among downtown businesses and manufacturers, and would attract workers from elsewhere in the state. However, the argument relies on a series of unsubstantiated assumptions, which render it unconvincing.

The first problem with the argument involves the author's claim that the expressway would help prevent downtown merchants and manufacturers from experiencing shortages in stock and materials. This claim depends on three assumptions. One assumption is that such a problem exists in the first place. A second assumption is that the absence of an expressway is the cause of such shortages; yet common sense tells me that the availability of these commodities is probably the primary such factor. A third assumption is that stock and materials would be delivered primarily via the expressway. Yet it is entirely possible that these commodities are delivered directly to the downtown area by other means, such as rail or air transport. Without substantiating these assumptions the author cannot justifiably conclude that the expressway would help prevent shortages of stock and materials.

Another problem with the argument involves the author's dual claim that because of the new expressway workers from elsewhere in the state will be lured to work in this city's downtown area and at the same time will choose to live in the suburbs. The author provides no evidence that the existence of an expressway would suffice to entice people to work in this city's downtown area. Moreover, the author ignores the possibility that people who might want to

work in the city's downtown area would generally prefer to live in that area as well. In this case the expressway would be of no help in attracting qualified workers to this city's downtown area.

A third problem with the argument is that it unfairly assumes that the expressway will result in a net influx, rather than outflow, of workers to the downtown area. In fact, the expressway might make it easier for people who currently live and work downtown to commute to jobs in other areas or even relocate their businesses to outlying areas. Either scenario would serve to undermine the author's claim that the expressway would provide a boon to the downtown economy.

Finally, the argument rests on the assumption that funds used to build the expressway and to create jobs for construction workers cannot be applied to some other program instead---one that would be even more effective in promoting the health of the downtown economy. Without identifying and weighing such alternatives, the author cannot defend the conclusion that voters should approve the expressway project.

In conclusion, the argument is unconvincing as it stands. To strengthen it the author must provide strong evidence that the expressway would help alleviate shortages of supply and materials among downtown businesses and manufacturers. The author must also show that the expressway would in fact result in a net influx of workers who would change jobs because of the availability of the expressway. Finally, to better evaluate the argument we would need more information about possible alternatives to the proposal, and whether any such alternative would be more effective in promoting the health of the downtown economy.

Argument 113

The following appeared in a recommendation from the planning department of the city of Transopolis.

"Ten years ago, as part of a comprehensive urban renewal program, the city of Transopolis adapted for industrial use a large area of severely substandard housing near the freeway. Subsequently, several factories were constructed there, crime rates in the area declined, and property tax revenues for the entire city increased. To further revitalize the city, we should now take similar action in a declining residential area on the opposite side of the city. Since some houses and apartments in existing nearby neighborhoods are currently unoccupied, alternate housing for those displaced by this action will be readily available."

The planning department for the city of Transopolis recommends, as part of its urban renewal plan, that the city convert a certain residential area for industrial use and relocate residents from that area to nearby unoccupied housing. To support this recommendation, the planners point out that ten years ago the city converted an area of substandard housing on the other side of town, near a freeway, for industrial use, and that afterwards that area's crime rate declined while the city's overall property-tax revenue increased. I find the recommendation specious on several grounds.

To begin with, the recommendation relies on two poor assumptions about the effects of the freeway-area conversion. One such assumption is that the freeway-area conversion caused the decline in that area's crime rate. The mere fact that the conversion occurred before the decline does not suffice to prove that the conversion caused the decline. Perhaps the true

cause was some unrelated development--such as a new city-wide "tough-on-crime" policy or improvements in police training. Another such assumption is that the increase in overall property-tax revenue indicates an increase in tax revenue from properties in the freeway area. Perhaps property-tax revenue from the converted properties remained the same, or even declined, after the conversion, and that the city's overall property-tax revenue increase was attributable to properties located elsewhere in the city. For that matter, perhaps the city raised its property-tax rates shortly after the conversion. In short, without ruling out alternative explanations for the developments that came after the freeway-area conversion, the planners cannot convince me that the conversion was responsible for those developments.

Even if the evidence turns out to substantiate the two foregoing assumptions, the recommendation further assumes that the proposed conversion would carry the same results as the freeway-area conversion. Yet key differences between the two areas might undermine the analogy. For example, perhaps the properties surrounding the ones converted in the freeway area were not residential. Common sense informs me that crimes such as burglary and robbery are less likely in areas where few people reside. Since at least some nearby housing is available for residents displaced by the proposed conversion, this conversion might not result in any significant decline in the area's crime rate. At the same time, unless unoccupied nearby housing can accommodate all displaced residents, the conversion might create a homelessness problem, thereby undermining the city's objectives.

Finally, the recommendation assumes that all conditions bearing on whether residential to-industrial conversions would help renew Transopolis have remained unchanged over the past ten years--and will continue unchanged in the foreseeable future. Yet, perhaps Transopolis had more and better housing for displaced residents ten years ago than today. Or perhaps Transopolis would have more trouble finding occupants for additional industrial buildings today than it did ten years ago. Indeed, a myriad of factors---including the regional and national economy, demographic shifts, and political influences--might explain why an urban-renewal program that had a salutary impact on Transopolis' crime rate and property-tax revenues in the past might nevertheless not revitalize the city today, or in the future.

In sum, the planners' recommendation is largely unfounded. To bolster it they must provide clear evidence that the freeway-area conversion contributed to the decline in that area's crime rate and to the city's overall property-tax revenue increase. To better assess the argument I would need to know what other changes have occurred in the city that might explain those developments. Finally, to better assess the proposed plan's chances of success I would need to compare the circumstances surrounding the decline in the area slated for conversion with the decline in the freeway area prior to its conversion.

Argument 114

The following appeared in a letter to the editor of a local newspaper.

"The members of the town school board should not be reelected because they are not concerned about promoting high-quality education in the arts in our local schools. For example, student participation in the high school drama club has been declining steadily, and this year the school board refused to renew the contract of the drama director, even though he had received many awards for his original plays. Meanwhile, over \$300,000 of the high school

budget goes to athletic programs, and the head football coach is now the highest-paid member of the teaching staff."

This editorial argues that the town's school board members are unconcerned about promoting high-quality arts education in local schools, and therefore should not be reelected. To support this argument the editorial's author points out that student participation in high-school drama programs has been declining steadily, and that the board recently refused to renew the high-school drama director's contract, despite the fact that he has written several award-winning plays. The author also cites the fact that \$300,000 of the high school budget is allotted to athletic programs, and that the head football coach is the highest paid teacher. This argument is unpersuasive for a variety of reasons.

First and foremost, the editorial indicates neither how long the current board members have occupied their board positions nor the scope of their authority. Perhaps they are new members and the facts that the editorial cites are attributable to events and decisions occurring before the current board members assumed their positions. If so, and if the current board either has not had adequate opportunity or does not have adequate authority to reverse these developments, then any claim regarding their level of concern about arts education is unjustifiable--at least based on the evidence cited.

Even assuming adequate authority and tenure on the part of the current board members, they are not necessarily responsible for the declining student participation in drama programs. The decline might be due to some other factor. For instance, perhaps students generally dislike the current drama director. If so, then the board's refusal to renew his contract would indicate that the board is attempting to reverse the decline, and that the board is in fact concerned about facilitating arts education.

As for the fact that \$300,000 is devoted to athletic programs, the editorial does not indicate the school's total budget. It is entirely possible that \$300,000 accounts for a small portion of that budget compared to the amount budgeted for the arts. If so, and if the current school board is at least partly responsible for the current budget, these facts would cast considerable doubt on the editorial's claim that the board is unconcerned about promoting arts education.

Admittedly, the fact that the head football coach is the highest paid teacher provides some support for the editorial's claim assuming that the current board members are at least partially responsible for that salary. However, this fact in itself is insufficient to show that the board members are unconcerned about promoting arts education. Perhaps the football coach carries additional duties that warrant the high salary; in fact, perhaps he also teaches drama or music. Or perhaps his salary is high simply because he has been a teaching-staff member longer than nearly any other local school teacher.

Finally, the editorial's claim overlooks the fact that local arts education embraces not just high school drama but also drama programs at lower levels, and music, dance, and visual and graphic-arts programs. Thus even if the board's decisions indicate that they place a low priority on high-school drama education, it is entirely possible that the board is reallocating resources from that program to other arts programs. If so, then the editorial's claim is wrong, and the proper conclusion is that the board is actively concerned about promoting arts education as a whole in local schools.

In sum, the argument is unconvincing as it stands. To strengthen it the editorial's author

must at the very least assure me that the current board members have been on the board long enough to have adequate opportunity to demonstrate their level of concern for arts education, and that they have the authority to do so. The author should also provide clear evidence that the decisions of these board members were responsible for the declining student participation in drama programs. To better assess the argument I would need to know the reason why the board has not renewed the current drama director's contract. I would also need to know what percentage of the high school's current budget is allocated not just to drama programs but to arts education generally, so that I could compare that percentage with the percentages allocated to other programs.

Argument 115

The following appeared in a memo from the sales manager of Eco-Power, a company that manufactures tools and home appliances.

"Many popular radio and television commercials use memorable tunes and song lyrics to call attention to the products being advertised. Indeed, a recent study of high school students showed that 85 percent could easily recognize the tunes used to advertise leading soft drinks and fast-food restaurants. Despite our company's extensive advertising in magazines during the past year, sales of our home appliances declined. Therefore, to boost company profits, we should now switch to advertisements featuring a distinctive song."

In this memo Eco-Power's sales manager recommends that the company switch from print ads to ads with catchy songs in order to reverse its declining profits. To support this recommendation the memo cites the fact that most high-school students easily recognize tunes used to advertise leading soft-drinks and fast-food restaurants. However, the argument is unconvincing in light of several problems.

A threshold problem with the argument is that the author assumes that the current ad strategy is the cause of Eco-Power's declining profits. The author provides no evidence that this is the case. It is entirely possible that other factors are responsible for the decline. Perhaps the demand for all tools and home appliances generally has slowed; or perhaps Eco-Power's management or pricing policies are to blame. Without ruling out such possibilities, the author cannot persuade me that switching ad strategies would reverse Eco-Power's declining profits.

Another problem with the argument involves the memo's reliance on the high rate of tune-recognition among teenagers. For two reasons, this evidence lends little credible support for the recommended strategy. First, even if Eco-Power were to achieve a high rate of tune-recognition among teenagers, this demographic group is not the same group that purchases tools and home appliances. Secondly, even assuming Eco-Power can achieve a high tune-recognition rate among its target demographic group, this fact alone is no guarantee that these consumers would be more likely to buy Eco-Power products as a result of recognizing the company's tunes.

A third problem with the argument is that it assumes that the increased sales due to a high tune-recognition rate would outweigh the costs of achieving this rate. However, a tune can be communicated only via such media as radio and television; and real-world experience informs us that these advertising media are more costly than print media. Although leading soft-drink

and fast-food companies can well afford the costs of producing effective tunes and of ensuring that these tunes are heard again and again by many, many consumers, Eco-Power might lack the resources to ensure the sort of tune recognition which these other companies have achieved. Unless the sales manager can convince us that the proposed ad strategy will be cost effective, his conclusion that this strategy will result in increased profits for Eco-Power is untenable.

In conclusion, the sales manager has not provided a convincing argument for the proposed ad strategy. To strengthen the argument the manager must show that the current ad strategy is in fact the cause of Eco-Power's declining profits. The manager must also provide strong evidence that the people who buy the kinds of tools Eco-Power sells would hear the company's tunes frequently enough to immediately associate the tune with the company, and that this association would cause these listeners to buy Eco Power products. Finally, to better evaluate the argument we would need a detailed cost benefit analysis of the proposed ad strategy.

Argument 116

The following appeared in a memo from the vice president of a company that builds shopping malls throughout the country.

"The surface of a section of Route 101, paved two years ago by McAdam Road Builders, is now badly cracked and marred by dangerous potholes. In another part of the state, a section of Route 66, paved by Appian Roadways more than four years ago, is still in good condition. Appian Roadways has recently purchased state-of-the-art paving machinery, and it has hired a new quality-control manager. Because of its superior work and commitment to quality, we should contract with Appian Roadways rather than McAdam Road Builders to construct the access roads for all our new shopping malls."

The vice president of a company that builds shopping malls argues here that the company should hire Appian rather than McAdam to build access roads for the company. To support this argument the vice president points out that a certain area of Route 101 that McAdam repaved two years ago has deteriorated significantly, while a certain stretch of Route 66 that Appian repaved four years ago remains in good condition. The vice president also points out that Appian recently acquired new state-of-the-art paving equipment and hired a new quality-control manager. I find the vice president's argument logically unconvincing--in several respects.

First of all, it is unfair to infer based solely on the comparison between the two stretches of highway that Appian does better work than McAdam. The inference relies on the poor assumption that the comparative quality of two contractors' work, rather than some other phenomenon, was responsible for the comparative condition of the two stretches of pavement. Perhaps the stretch that McAdam repaved is located in an area whose extremes in climate or high traffic volume serve to erode and damage pavement very quickly. For that matter, perhaps soil or other geological conditions in that area were primarily responsible for deterioration of the pavement along that stretch. In short, without showing that all other conditions in the two areas have been essentially the same, the vice president cannot convince me that the quality

of McAdam's and Appian's repaving work was responsible for the difference in how well the two stretches of pavement have held up.

Secondly, it is unfair to conclude based on Appian's recent equipment acquisition and personnel decision that Appian will do a better job than McAdam. Perhaps McAdam has also acquired the same type of equipment. Moreover, perhaps McAdam's quality-control manager is far more experienced than Appian's new manager, and as a result McAdam's product is likely to be better than Appian's. Besides, equipment and on-site management are only two of many factors affecting the quality of a pavement job. Other such factors include the experience and competence of other workers, and the paving material used. Without showing that the two firms are similar in these and other respects, the vice president cannot justify his recommendation of Appian over McAdam.

Finally, the vice president's recommendation rests on the unlikely assumption that the company has only two alternatives--McAdam and Appian. In all likelihood the company can engage one of many other paving contractors instead. Thus to the extent the vice president recommends Appian over not just McAdam but over any other contractor the recommendation is unwarranted.

In sum, the vice president has not convinced me that the company should hire Appian. To strengthen the argument the vice president must provide clear evidence that it was the quality of McAdam's and Appian's work rather than one or more other factors--that resulted in the difference between how well the two stretches of pavement have held up over time. The vice president must also provide better evidence that Appian's new equipment and new manager will enhance, or at least maintain, the quality of Appian's overall work at a higher level than McAdam's overall work. Finally, to better assess the argument I would need to know what other paving contractors the company could hire, and the quality of those contractors' work compared to McAdam's and Appian's.

Argument 117

The following appeared in a newspaper feature story.

"There is now evidence that the relaxed manner of living in small towns promotes better health and greater longevity than does the hectic pace of life in big cities. Businesses in the small town of Leeville report fewer days of sick leave taken by individual workers than do businesses in the nearby large city of Mason City. Furthermore, Leeville has only one physician for its one thousand residents, but in Mason City the proportion of physicians to residents is five times as high. And the average age of Leeville residents is significantly higher than that of Mason City residents. These findings suggest that people seeking longer and healthier lives should consider moving to small communities."

This newspaper story concludes that living in a small town promotes health and longevity. The story's author bases this conclusion on a comparison between the small town of Leeville and nearby Mason City, a much larger town. However, careful scrutiny of the author's evidence reveals that it lends no credible support to the author's conclusion.

A threshold problem with the argument is that the author draws a general conclusion about

the effect of a town's size on the health and longevity of its residents based only on characteristics of two towns. The author provides no evidence that these two towns (or their residents) are representative of other towns their size. In other words, this limited sample simply does not warrant any general conclusions about the effect of a town's size on the health and longevity of its residents.

Next, the author cites the fact that the incidence of sick leave in Leeville is less than in Mason City. This evidence would lend support to the argument only if the portion of local residents employed by local businesses were nearly the same in both towns, and only if the portion of employees who are local residents were nearly the same in both towns. Moreover, in relying on this evidence the author assumes that the portion of sick employees who actually take sick leave is nearly the same in both towns. In short, without showing that the two towns are similar in these ways, the author cannot draw any reliable comparisons about the overall health of the towns' residents--or about the impact of town size on health.

The author also cites the fact that Mason City has five times as many physicians per resident than Leeville. However, any number of factors besides the health of the towns' residents might explain this disparity. For example, perhaps Leeville residents choose to travel to Mason City for physician visits. Without ruling out such explanations, these physician-resident ratios prove nothing about the comparative health of Leeville and Mason City residents---or about the impact of town size on health.

Finally, the author cites the fact that the average age of Leeville residents is higher than that of Mason City residents. However, any number of factors might explain this disparity. For example, perhaps Leeville is a retirement community, while Mason City attracts younger working people. For that matter, perhaps Leeville is comprised mainly of former Mason City residents whose longevity is attributable chiefly to their former life-style in Mason City. In any event, the author cannot justify the conclusion that this disparity in average age is due to the difference in size between the two towns.

In conclusion, the argument that small-town living promotes good health and longevity is unpersuasive as it stands. To strengthen the argument the author must provide clear evidence that the overall population of Leeville, not just employees in Leeville, is healthier than that of Mason City. The author must also provide strong evidence that Leeville and Mason City residents visit local physicians whenever they become sick. Finally, to better evaluate the argument we would need more information about why the average age of Leeville residents exceeds that of Mason City residents.

Argument 118

The following appeared in a memorandum from the general manager of KNOW radio station.

"Several factors indicate that radio station KNOW should shift its programming from rock-and-roll music to a continuous news format. Consider, for example, the number of older people in our listening area has increased dramatically, while the total number of our listeners has recently declined. Also, music stores in our area report decreased sales of recorded music. Finally, continuous news stations in neighboring cities have been very successful, and a survey taken just before the recent election shows that local citizens are interested in becoming better informed about politics."

This memo recommends that KNOW radio station shift from rock-and-roll (R&R) music programming to all-news programming. To support this recommendation the manager points out that the number of KNOW listeners is decreasing while the number of older people in KNOW's listening area is increasing. The manager also points out that area sales of music recordings are in decline, and that a recent survey suggests that local residents are becoming better informed about politics. Finally, the manager cites the success of all-news stations in nearby cities. Careful scrutiny of the manager's argument reveals several unproven assumptions, which render it unconvincing.

First, the manager unfairly assumes that the decline in the number of KNOW listeners is attributable to the station's current format. Perhaps the decline is due instead to KNOW's specific mix of R&R music, or to transmission problems at the station. Without ruling out these and other feasible reasons for the decline, the manager cannot convince me that changing the format would reverse the trend.

Secondly, the manager's assumption that older people favor all-news programming is unsupported. Perhaps KNOW listeners are dedicated R&R fans who will continue to prefer this type of programming as they grow older. Or perhaps as KNOW's regular audience ages it will prefer a mix of R&R and news programming--rather than one format to the total exclusion of the other. Besides, the number of young people in the listening area might be increasing as well. In short, the mere fact that the number of older people in KNOW's listening area is increasing suggests nothing about KNOW's best programming strategy.

Thirdly, a decrease in local music recording sales is scant evidence that KNOW should eschew music in favor of an all-news format. Although overall music sales are in decline, perhaps sales of R&R recordings are actually increasing while sales of all other types of music recordings are decreasing. For that matter, perhaps people who buy music recordings are generally not the same people who listen to music on the radio. Either scenario, if true, would seriously undermine the manager's contention that KNOW should discontinue R&R programming.

Fourth, it is unfair to conclude from one survey suggesting that local residents are becoming better informed about politics that they are becoming less interested in listening to R&R music, or that they are becoming more interested in listening to news. After all, news embraces many topics in addition to politics. Besides, there is no reason why people interested in politics cannot also be interested in listening to R&R music. Moreover, a single survey taken just prior to an election is poor evidence that local residents' piqued interest in politics is sustainable.

Finally, it is unwarranted to infer from the success of all-news stations in nearby areas that KNOW will also succeed by following the same format. Those stations might owe their success to their powerful transmitters, popular newscasters, or other factors. Besides, the very success of these stations suggests that the area's radio listeners might favor those well-established news providers over the fledgling all-news KNOW.

In sum, the manager's evidence accomplishes little toward supporting the manager's argument for the proposed format shift. To further bolster the argument the manager must provide better evidence, perhaps by way of a reliable survey, that people within KNOW's listening area are becoming more interested in news and less interested in R&R music--or any other kind of music. The manager must also show that an all-news format would be more

popular than a mixed format of music and news, and that a significant number of people would prefer KNOW's all-news programming over that of other stations in the listening area.

Argument No. 119

Solano's music education programs

This letter concludes that Solano school district should discontinue its music programs altogether. To justify this conclusion the author points out that only 20% of Solano's students enroll in music classes and that few Solano students pursue music as a major course of study in college. The author also points out that in nearby Rutherford student grades increased the year after that district discontinued music education. This argument is problematic in several critical respects.

A threshold problem with the argument is that it relies on certain implicit assumptions about the value of music education. Specifically, the author assumes that any education program is valuable only to the extent that it enhances overall grades and only if students choose to pursue that course of study in college. Such normative assumptions are dubious at best; common sense tells me that the chief value of music education, like that of art or physical education, lies in its contribution to the full development of a child, not in its influence on grades or choice of career. Without addressing this issue, the author's conclusion can be dismissed out of hand.

Another problem with the argument involves the implicit claim that only 20% of Solano students enroll in music courses because they are uninterested in music. This claim assumes that students have a choice in what courses they take in the first place; yet we are not informed that this is the case. It also unfairly assumes that no other factor influences students' decisions about whether to enroll in music courses. Perhaps Solano's current music teachers are unpopular; or perhaps the district lacks sufficient funds to meet current demand for music courses or to provide adequate facilities and instruments for more students. Since the author has not ruled out these other possible explanations for the low enrollment rate, the author's implicit claim that Solano students are not interested in music is doubtful at best.

Yet another problem with the argument involves the implicit claim that music education is not worthwhile because few Solano students pursue music as a college major. This claim assumes that all Solano students pursuing a career in music attend college in the first place; yet this is not necessarily the case. The claim also assumes that Solano students are properly advised about choosing their college major; yet it is entirely possible that Solano's high school advisors dissuade students from pursuing music. Since the author fails to rule out these possibilities, the fact that few Solano students pursue music in college lends little credible support for the author's conclusion.

A final problem with the argument involves Rutherford's increase in its students' grades the year after that district discontinued music programs. This increase might be attributable to numerous factors. Perhaps that year Rutherford received substantial funding to enhance its after-school tutoring program; or perhaps it hired more effective teachers that year. Or perhaps the outgoing graduating class one year was less bright overall than the incoming freshman class the next year. Any of these scenarios, if true, would discredit the author's assertion that music education contributes to lower academic grades. Besides, the author cites an increase during only one year—an insufficiently small range to draw any reliable general conclusion.

In sum, the author's argument for discontinuing music education is weak. To strengthen the

argument the author must show that the cited statistics about Solano students reflect their lack of interest in music rather than some other phenomenon, and that the increase in Rutherford's grades were the result of its discontinuing music education.

Argument 120

The following appeared as part of an article in a local Beauville newspaper.

"According to a government report, last year the city of Dillton reduced its corporate tax rate by 15 percent; at the same time, it began offering relocation grants and favorable rates on city utilities to any company that would relocate to Dillton. Within 18 months, two manufacturing companies moved to Dillton, where they employ a total of 300 people. Therefore, the fastest way for Beauville to stimulate economic development and hence reduce unemployment is to provide tax incentives and other financial inducements that encourage private companies to relocate here."

This article argues that the fastest way for Beauville to stimulate its economic development and reduce unemployment would be to provide the same kinds of tax and financial incentives for business as the incentives which the city of Dillton began providing 18 months ago. Dillton's incentives included a reduced corporate tax rate as well as relocation grants and favorable utility rates for businesses willing to relocate to DiUton. The article points out that during the last 18 months two manufacturing companies, which together now employ 300 people, relocated to Dillton. The argument is logically unconvincing in several respects.

To begin with, the argument depends on the assumption that the two businesses moving to DiUton did so because of Dillton's new incentives--rather than for some other reason. Yet lacking evidence to the contrary it is entirely possible that the two businesses were motivated primarily by Dillton's climate, labor pool, or some other factor. Without ruling out all other reasons why the two businesses might have relocated to DiUton, the argument that BeauviUe can entice businesses to move to BeauviUe by offering similar incenrives is dubious at best.

Even if it was Dillton's new incentives that enticed the two manufacturers to Dillton, the argument relies on the further assumption that the two firms' relocating to Dillton in fact had a beneficial impact on the city's economy. Yet the only evidence the article offers to substantiate this assumption is that the two manufacturers now employ 300 people. Perhaps those 300 employees left other jobs in DiUton to go to work for those two finns; if so, then the incentives had no positive impact on Dillton's employment rate. Or perhaps other businesses have left Dillton during the last 18 months, taking even more job opportunities with them. For that matter, perhaps on average more businesses relocated to DiUton each year prior to DiUton's establishing the new incentives than afterwards. In short, without more information about DiUton's economic conditions and employment level both before and after the incentives were established it is impossible to assess whether those incentives had a positive or negative impact--or any impact at all--on DiUton's overall economy.

Even if Dillton's new incentives did in fact serve to help Dillton's economy, the arride unfairly assumes that similar incentives will carry a similar result for BeauviUe. It is entirely possible that the two dries differ in ways that would undermine the effectiveness of similar incentives for BeauviUe. For instance, perhaps BeauviUe's labor pool is smaller; or perhaps unemployed

Beauville residents would be less willing or able to go to work if offered the chance. Without accounting for such differences any analogy between the two cities is premanare, and any conclusion based on that analogy is unjustified. Furthermore, the author's inference that incentives which were effective in the past will also be effective in the future rests on the poor assumption that during the last 18 months all conditions upon which their effectiveness depend have remained unchanged. Perhaps the general economy is expected to turn down. Or perhaps other dries have recently begun to provide similar incentives. Indeed, the fact that DiUton is already providing these incentives might actually portend failure for Beauville, which might need to devise even stronger incentives to convince businesses to move to Beauville rather than Dillton.

Finally, the article fails to consider any other course of action that might help Beauville attain the same economic goals. Perhaps by improving its schools or hospitals, or by reducing its crime rate, Beauville can just as quickly and effectively attract new businesses and achieve its economic objectives. In short, without weighing the proposal against alternatives, the article's claim that the proposed incentives are the "best" means of achieving Beauville's objectives is wholly unconvincing.

To sum up, the article has not convinced me that the proposed incentives would be the best way for Beauville to achieve its economic goals. To bolster the argument the article's author must provide clear evidence that Dillton's incentives--and not some other phenomenon--were in fact responsible for stimulating Dillton's economy during the last 18 months. To better assess the argument I would need to know what other conditions in Beauville that were not present in Dillton might dissuade businesses from moving to Beauville--despite the proposed incentives. I would also need to compare near-term economic forecasts with economic conditions during the last 18 months. Finally, I would need to consider the proposed incentives in light of alternative courses of action.

Argument 121

The following appeared in a memorandum from the president of Mira Vista College to the college's board of trustees.

"At nearby Green Mountain College, which has more business courses and more job counselors than does Mira Vista College, 90 percent of last year's graduating seniors had job offers from prospective employers. But at Mira Vista College last year, only 70 percent of the seniors who informed the placement office that they would be seeking employment had found full-time jobs within three months after graduation, and only half of these graduates were employed in their major field of study. To help Mira Vista's graduates find employment, we must offer more courses in business and computer technology and hire additional job counselors to help students with their resumé's and interviewing skills."

This letter recommends that in order to improve its job placement record Mira Vista College should offer more business and computer courses and should hire more job counselors. To support this recommendation the author points out that at Green Mountain College 90 percent of last year's graduates had job offers, but that only 70 percent of Mira Vista seniors who reported that they planned to seek employment had jobs within three months after graduation,

and only half of these graduates were employed in their major fields of study. This argument is problematic in several critical respects.

First, the author assumes that Green Mountain's comparatively strong job-placement record is due to the fact that it provides more business courses and job counselors than Mira Vista, rather than some other factor. But this need not be the case. Perhaps Green Mountain students are exceptionally bright or resourceful to begin with. Or perhaps the quality of instruction and job counseling at Green Mountain is exceptionally high. Moreover, perhaps Green Mountain provides more business courses and job counselors than Mira Vista simply because Green Mountain is a larger school with more students; if so, then the comparative numbers are not likely to have any bearing on job-placement success. In short, without ruling out other possible explanations for the difference between job-placement rates, the author cannot reasonably conclude that additional business courses and job counselors would enhance Mira Vista's job-placement record.

Another problem with the argument is that the statistics comparing job placement rates might be distorted in one or more respects. First, the author fails to indicate the percentage of Green Mountain graduates who find employment in their major fields of study. Without this information it is impossible to assess the comparative success of the two colleges in helping their recent graduates find such employment. Second, the author ignores the possibility that the time parameters defining the two schools' job-placement rates differ. Mira Vista's record was determined only three months after graduation. It is entirely possible that Green Mountain's record was based on a longer period of time, thereby distorting the comparative success of the schools in helping their recent graduates find jobs.

The cited statistics about Mira Vista's job placement record might be unreliable in other respects as well. These statistics were based only on data from Mira Vista seniors who reported to the college's job-placement center. The author overlooks the possibility that only a small portion of Mira Vista seniors reported to begin with. The author also ignores the possibility that many of these reporting students later changed their minds about seeking employment or were offered jobs but turned them down. Without ruling out these possible scenarios, the author cannot reasonably rely on these statistics to support the claim that Mira Vista's job-placement record is comparatively poor and thus could be improved by Mira Vista's emulating Green Mountain.

In conclusion, the argument is unconvincing as it stands. To strengthen it the author must show that additional business courses and job counselors would in fact improve Mira Vista's job-placement rate, and that the comparison between the job-placement rates at the two schools is fair. Finally, the author provides no evidence whatsoever to support his recommendation for providing more computer courses; to justify this claim the author must provide supporting evidence.

Argument 122

The following appeared as an editorial in the local newspaper of Dalton.

"When the neighboring town of Williamsville adopted a curfew four months ago that made it illegal for persons under the age of 18 to loiter or idle in public places after 10 p.m., youth crime in Williamsville dropped by 27 percent during curfew hours. In Williamsville's town square, the

area where its citizens were once most outraged at the high crime rate, not a single crime has been reported since the curfew was introduced. Therefore, to help reduce its own rising crime rate, the town of Dalton should adopt the same kind of curfew. A curfew that keeps young people at home late at night will surely control juvenile delinquency and protect minors from becoming victims of crime."

The author of this editorial argues that in order to reduce its rising crime rate the city of Dalton should establish a 10:00 curfew for minors under age 18. The author also claims that the curfew would control juvenile delinquency as well as preventing minors from becoming crime victims. To support these claims the author points out that WiUiamsville established a similar curfew four months ago, and that since then WiUiamsville's youth crime rate has dropped by 27% during curfew hours. The author also points out that in Williamsville's town square no crimes have been reported in the last four months, yet Williamsville residents had previously expressed particular outrage about the square's high crime rate. I find the editorial logically unconvincing in several respects.

To begin with, the author has failed to convinceme that Williamsville's overall crime rate has declined, or that the curfew was responsible for any such decline. It is entirely possible that although that city's youth crime rate has declined, its adult crime rate has risen. If so, this fact would seriously call into question the author's claim that a similar curfew would reduce Dalton's overall crime rate. Even if Williamsville's overall crime rate has declined in the last four months, the decline is not necessarily attributable to the curfew. Perhaps WilliamsviUe has also enhanced its police enforcement, or established social programs that help minors avoid delinquency. In short, without evidence that all other conditions that might affect Williamsville's crime rate have remained unchanged during the last four months, the author's claim that the curfew is responsible for the drop in that city's crime rate is dubious at best.

Moreover, the evidence involving the town square does not adequately show that Williamsville's curfew has been effective in reducing its crime rate. The number of crimes reported in the square does not necessarily reflect the number actually committed there.

Also, it is entirely possible that Williamsville's residents had already abandoned the town square at night by the time WilliamsviUe established the curfew. If so, then the mere fact that no crimes in the square have been committed or reported recently proves nothing about the effectiveness of the curfew.

Even if Williamsville's curfew was responsible for a decline in that city's overall crime rate, the editorial's claim that a similar curfew would be effective in Dalton is unwarranted. Dalton might differ from Williamsville in ways that would undermine the curfew's effectiveness in Dalton. Or perhaps the percentage of crimes that are committed by adults is far greater in Dalton than in W'filiamsville. In either case, a curfew that is effective in reducing WilliamsviUe's overall crime rate might be far less effective in reducing Dalton's.

Even assuming the proposed curfew would reduce Dalton's overall crime rate, the author unfairly infers that the curfew would also curb juvenile delinquency. The author's definition of juvenile delinquency might embrace additional behaviors--ones that don't amount to crimes. Besides, a reduction in the overall crime rate does not necessarily indicate a reduction in the youth crime rate.

The author's further inference that the curfew would protect minors from becoming crime

victims is also unwarranted. This inference depends on the assumption that all crimes against youths occur during curfew hours. Yet common sense informs me that many such crimes occur during other hours. The inference also rests on the assumption that it is adults who are committing all crimes against youths. Yet the author fails to account for the possibility that some crimes against youths are committed by other youths.

In sum, the editorial relies on a series of dubious assumptions, which render it wholly unpersuasive. To bolster the editorial's claims the author must provide clear evidence that the curfew, and not some other phenomenon, was in fact responsible for a decline in WilliamsviUe's youth crime rate. The author must also show that the curfew would have a similar effect in Dalton, and that the curfew would result in a decline in not just the youth crime rate but also the overall crime rate. To better assess the author's final two claims I would need to know how the author defines 'juvenile delinquency,' and what percentage of crimes against Dalton's youth are committed by other youths.

Argument 123

The following appeared in a memo written by a dean at Buckingham College.

"To serve the housing needs of our students, Buckingham College should build a new dormitory. Buckingham's enrollment is growing and, based on current trends, should double over the next fifty years, thus making existing dormitories inadequate. Moreover, the average rent for an apartment in our town has increased in recent years. Consequently, students will find it increasingly difficult to afford off-campus housing. Finally, an attractive new dormitory would make prospective students more likely to enroll at Buckingham."

In this memo a dean at Buckingham College recommends that in order to meet expected enrollment increases the college should build an additional dormitory. To support this recommendation the dean points out that rental rates for off-campus apartments have been increasing, thus making it more difficult for students to afford this housing option. The dean also points out that a new dormitory would attract prospective students to the college. This argument is problematic in several respects.

A threshold problem with the argument involves the statistical reliability of the reports about off-campus rental rates. The dean indicates only that "student leaders" reported these statistics; the dean provides no information about how these students collected their data. It is entirely possible that the report was based on an insufficiently small sample, or a sample that was unrepresentative of the town's overall student rental market.

Secondly, the dean assumes that this current trend in rental rates will continue in the future; yet the dean offers no evidence to substantiate this assumption. These rates are a function of supply and demand, and it is entirely possible that construction of apartment houses will increase in the future, thereby reducing rental rates along with the need for an additional dormitory. Without considering this possible scenario, the dean cannot justifiably conclude that an additional dormitory is needed to meet future demand.

Thirdly, the dean assumes that as enrollment increases the demand for student housing will also increase. While this might be the case, the dean ignores the possibility that the increased enrollment will be the result of an increase in the number of students commuting to

Buckingham from their parents' homes. This scenario, if true, would render the dean's argument for building a new dormitory untenable.

Yet another problem with the argument involves the dean's final claim that an attractive new dormitory would attract prospective students to Buckingham. Even assuming students in fact choose colleges on this basis, by relying on this evidence the dean essentially provides an argument against building the new dormitory. If an attractive new dormitory would increase demand for dormitory space, this fact would only serve to undermine the dean's conflicting claim that the new dormitory would help meet increasing demand for dormitory space.

In conclusion, the dean's recommendation is not well supported. To strengthen it the dean must provide clear evidence that average rental rates for off-campus student apartments have in fact been increasing, that this trend will continue in the future, and that this trend will in fact result in an increased demand for dormitory housing.

Argument 124

The following appeared in a memo at the XYZ company.

"When XYZ lays off employees, it pays Delany Personnel Firm to offer those employees assistance in creating resumés and developing interviewing skills, if they so desire. Laid-off employees have benefited greatly from Delany's services: last year those who used Delany found jobs much more quickly than did those who did not. Recently, it has been proposed that we use the less-expensive Walsh Personnel Firm in place of Delany. This would be a mistake because eight years ago, when XYZ was using Walsh, only half of the workers we laid off at that time found jobs within a year. Moreover, Delany is clearly superior, as evidenced by its bigger staff and larger number of branch offices. After all, last year Delany's clients took an average of six months to find jobs, whereas Walsh's clients took nine."

This XYZ company memo recommends that XYZ continue to use Delany instead of Walsh as its personnel service for helping laid-off XYZ employees find new jobs. To support this recommendation the memo points out that 8 years ago, when XYZ was using Walsh, only half of XYZ's laid-off workers found new jobs within a year. The memo also points out that last year XYZ employees using DeNny's services found jobs much more quickly than those who did not, and that the average DeNny client found a job in 6 months, compared to 9 months for the average Walsh client. The memo also mentions that DeNny has more branch offices and a larger staff than Walsh. I find the memo's argument unconvincing for several reasons.

To begin with, Walsh's prior rate of placing laid-off XYZ employees is not necessarily a reliable indicator of what that rate would be now. Perhaps the placement rate 8 years ago was due to a general economic downturn or some other factor beyond Walsh's control. For that matter, perhaps the rate was relatively high among all placement services during that time period. In short, without ruling out other possible reasons for Walsh's ostensibly low placement rate 8 years ago, and without convincing me that this rate was low to begin with, the memo's author cannot convince me on the basis of XYZ's past experience with Walsh that XYZ should favor DeNny over Walsh.

The memo also makes two hasty assumptions about the benefits of DeNny's services last year. One such assumption is that these services were in fact responsible for helping the

laid-offXYZ employees who used those services find jobs more quickly. It is entirely possible that the comparative success of this group was due instead to their other aggressive job-seeking efforts, which might even have included using Walsh's services--in addition to DeNny's. Also, the memo unfairly equates the speed with which one finds a job with job-seeking success. Common sense informs me that the effectiveness of a job search depends not only on how quickly one finds a job, but also on compensation, benefits, location, and type of work.

Furthermore, the difference in the two firms' overall placement time last year does not necessarily indicate that DeNny would be the better choice to serve XYZ's laid-off employees. These employees might have particular skills or needs that are not representative of the two firms' clients in general. Besides, a single year's placement statistics hardly suffices to draw any firm conclusions. Last year might have been exceptional--perhaps due to some unusual event that is unlikely to reoccur, such as a major employer's move to an area that DeNny serves, or out of an area that Walsh serves.

Finally, the fact that Delany has more branch offices and a larger staff than Walsh proves nothing in itself about which firm would be more effective in finding jobs for laid-off XYZ employees. Perhaps these employees generally look for jobs in geographic areas or industries outside of Delany's domain. Or perhaps the number of Delany staff members per office is actually lower than at Walsh. Either scenario, if true, would cast serious doubt on the memo's conclusion that XYZ should favor Delany over Walsh.

In sum, as it stands the recommendation is not well supported. To bolster it the memo's author must provide better evidence--perhaps from XYZ's records--that Delany's services have consistently helped laid-offXYZ employees find jobs. Instead of attempting to convince me that Walsh provided a disservice to XYZ 8 years ago, the author should provide better evidence that Walsh's services would be inferior to Delany's in the foreseeable future. Accordingly, to better assess the recommendation it would be helpful to compare the number of staff members per office at the two firms, and the level of experience of those staff members. It would also be useful to know what sorts of skills laid-off XYZ employees possess, and which firm, Delany or Walsh, serves industries and areas with more openings for people with those skills.

Argument 125

The following appeared as an editorial in the student newspaper of Groveton College.

"To combat the recently reported dramatic rise in cheating among college and university students, these institutions should adopt honor codes similar to Groveton's, which calls for students to agree not to cheat in their academic endeavors and to notify a faculty member if they suspect that others have cheated. Groveton's honor code replaced an old-fashioned system in which students were closely monitored by teachers and an average of thirty cases of cheating per year were reported. The honor code has proven far more successful: in the first year it was in place, students reported twenty-one cases of cheating; five years later, this figure had dropped to fourteen. Moreover, in a recent survey conducted by the Groveton honor council, a majority of students said that they would be less likely to cheat with an honor code in place than without."

In this editorial the author concludes that colleges should adopt an honor code for detecting academic cheating. To support this conclusion the author points out that the first year after switching from a monitoring system to an honor system the annual number of reported cheating incidents at Groveton College decreased from 30 to 21, and that five years later the number was only 14. The author also cites a survey in which most students indicated they would be less likely to cheat under an honor system than if they are closely monitored. This argument is unconvincing for several reasons.

First and foremost, the argument relies on the assumptions that Groveton students are just as capable of detecting cheating as faculty monitors, and that these students are just as likely to report cheating whenever they observe it. However, without evidence to substantiate these assumptions one cannot reasonably conclude that the honor code has in fact resulted in a decline in the incidence of cheating at Groveton. Besides, common sense tells me that these assumptions are dubious at best; an impartial faculty observer is more likely to detect and report cheating than a preoccupied student under peer pressure not to report cheating among classmates.

The argument also assumes that during the five-year period all other conditions possibly affecting the reported incidence of cheating at Groveton remained unchanged. Such conditions include the number of Groveton students and the overall integrity of the student body. After five years it is entirely possible that these conditions have changed, and that the reported decrease in cheating is attributable to one or more such changes. Thus, without ruling out such alternative explanations for the reported decrease, the author cannot convince me that the honor code has in fact contributed to a decline in the incidence of cheating at Groveton.

The author's recommendation that other colleges follow Groveton's example depends on the additional assumption that Groveton is typical in ways relevant to the incidence of cheating. However, this is not necessarily the case. For instance, perhaps Groveton students are more or less likely to report cheating, or to cheat under an honor system, than typical college students. Lacking evidence that Groveton students are typical in these respects, the argument is indefensible.

Finally, the survey that the author cites might be unreliable in any of three respects. First, the author fails to assure us that the survey's respondents are representative of all college students. Second, the survey results depend on the honesty and integrity of the respondents. Third, hypothetical predictions about one's future behavior are inherently less reliable than reports of proven behavior. Lacking evidence that the survey is reliable, the author cannot reasonably rely on the survey in recommending that other colleges adopt an honor code.

In conclusion, to persuade me that other colleges should adopt an honor code in order to reduce cheating, the author must supply clear evidence that cheating at Groveton in fact decreased after the honor code was instituted there, and that it is this code that was responsible for the decrease. Finally, to better assess the usefulness of the survey I would need specific information about the survey's sampling methodology.