Quantum Theory

Readers wishing to keep in touch with developments in quantum theory, to which Q methodology is increasingly tied, are referred to Abner Shimony's "The Reality of the Quantum World," *Scientific American*, 1988(Jan), *258*(1), 46-53, which contains simplified illustrations of major concepts.

RESEARCH IN PROGRESS: ANTARCTICA

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This project has theoretical and substantive dimensions. Theoretically, the goal is to articulate a systematic approach to the study of interaction in the international system based on Q methodology. This approach interprets that interaction in terms of concourses of opinions and verbal interchanges. The Q approach offers an alternative to more widely used orientations such as microeconomic formal theory, which interprets interaction in terms of games (prisoner's dilemma, chicken, etc.) or preference aggregation. Our claim is that the approach from Q is competitive with formal theory in terms of an ability to model conflict and consensus, to understand and account for outcomes (e.g., the formation of international regimes), and to generate advice for international actors (e.g., third party intervenors in disputes). Substantively, the concern is with the structure of evolving debates and decisions about the future of Antarctica (often considered a success story of productive and harmonious international politics).

The Antarctic concourse was examined to produce a 34-item Q sample. No cell structure was used, but

statements were taken from categories pertaining to environmental protection, resource management, commercial development, Antarctic science, national claims, access, and international control. The Q sorts were administered by mail to selected policy makers and other individuals active in Antarctic affairs in countries which have played a major role in the region. Responses were received from individuals in 11 countries (the only major gap in our coverage is the Soviet bloc).

Selected Bibliography

Beeby, C.D. (1986) The Antarctic Treaty System as a resource management mechanism--nonliving resources. In Polar Research Board, *Antarctic Treaty System: An assessment* (pp. 269-284). Washington, DC: National Academy Press.

Scully, R.T. (1986) The evolution of the Antarctic Treaty System--the institutional perspective. In Polar Research Board, *Antarctic Treaty System: An assessment* (pp. 391-411). Washington, DC: National Academy Press.

Antarctica Q Sample (*N*=34)

(1) Krill is a much more important Antarctic resource issue than is either minerals or hydrocarbons and therefore one should not be concerned with possible exploitation of these geological resources. (2) Interpretation of ice core and other climatic records from Antarctica is in the common interest of humans, and provides knowledge regarding the "greenhouse" effect and other long-range climatological phenomena. Thus, this climatological research is the most important Antarctic research for humans. (3) The treaty nations know more about the region's mineral and hydrocarbon wealth than they are admitting. They stand to benefit substantially from this wealth, and that is why they do not want the question resolved or even discussed in a larger forum, such as the United Nations. (4) The specially protected areas (SPAs) and the sites of special scientific interest (SSSIs) were established by the ATS (Antarctic Treaty System) to help preserve some areas of Antarctica. The expansion of these areas into a

protective biosphere should be a step in Antarctic resource management. (5) The future contribution of Antarctica to the wellbeing of mankind may be maximized best by unrestricted access to its natural resources by those states and corporations with the ability to develop them. (6) Scientific results from Antarctic research are widely published in many journals and ideas are freely exchanged by any nation interested in reading them. As such, these results are currently the region's most important resource. (7) Antarctica has the potential to make a major contribution to the world's resource base in the 21st century through the exploitation of krill, other fisheries, minerals, and hydrocarbon extraction. (8) Facilities for tourists (ships, hotels, airports) should be increased so that more people will have the opportunity to visit the scenic resources of Antarctica. Otherwise only the elites such as scientists, journalists, explorers, and politicians will be readily able to visit the region. (9) The dissemination of scientific data that results from fieldwork in Antarctica is of interest to the international community. Currently this dissemination is restricted to a selected audience composed of the Antarctic Treaty members. (10) Commercial exploration and exploitation of Antarctica's resources should be prohibited. Only physical, biological, and ecological science-related studies should be permitted.

(11) The primary reason that nation-state governments currently show increasing interest in Antarctica is the potential of mineral resource exploitation. Without this factor national governments outside the "Treaty Club" (those members of Antarctic Treaty with full voting rights) would not be concerned with the region's future. (12) Given the increasing world population, it is imperative that necessary resources, including resources for tourism, be exploited from the entire planet. (13) Antarctica is, and will remain, of peripheral importance in the international political system, even in the case of increased superpower tensions. (14) Countries which have not participated in explorations and science in Antarctica merit no say in, or benefit from, Antarctica's future. In order for a nation-state to benefit from an international resource (such as deep ocean minerals or Antarctic fisheries), that state

must make some contribution to the development of that resource. (15) Proximate nations (Australia, Argentina, Chile, South Africa, New Zealand) should have special rights that would be taken into account in any future arrangements for Antarctica. (16) The claimed portions of Antarctica represent a region that could be described as a "multiple-nation state" (MNS), owned, occupied, and organized by the Antarctic Treaty Consultative Parties. As such, other nations merit no say in internal actions of this "MNS." (17) Antarctica should become a world park with restricted scientific activity and greatly reduced tourism. (18) The Antarctic Treaty guarantees the region as demilitarized zone. Therefore, conventional and nuclear weapons and military activities should be barred from the Antarctic continent and waters. (19) Claims and disputes concerning the Antarctic Peninsula north of the Antarctic Circle should be handled differently from those pertaining to the rest of Antarctica. In other words, there is no need to treat the whole of Antarctica identically, but rather as two different regions. (20) The environmental value of Antarctica is primarily due to its unique habitat and remoteness.

(21) The Antarctic system is a unitary whole, and should be treated as such. Attempts to deal with specific locations or species in isolation should be avoided. (22) An arrangement comparable to the U.N.'s Law of the Sea should be secured for Antarctica, thus ensuring the third world's participation in the region's future. (23) Ecological, rather than political, principles should be the basis for resource management and/or environmental protection in Antarctica. (24) An Antarctic Environmental Protection Agency should be organized and maintained. (25) Environmental protection should be the responsibility of each nation, or the nation of a ship's registry, operating in Antarctica. (26) The responsibility for environmental protection, including enforcement of regulations, should continue to be the joint responsibility of consultative nations as is the current practice. (27) Impacts on the environment and on other resources should be carefully considered, from the underlying assumption of multiple use where possible, before exploiting the mineral, living, scenic, and scientific resources of Antarctica. (28)

The Third World lacks the scientific experience necessary to fully participate in Antarctic activities, including policy formation. (29) A secure and peaceful future for Antarctica requires division of the continent's territory into areas under the full sovereignty of nation states. (30) Overall, the UN has been successful in promoting international cooperation. For this reason those nations which are presently involved in emphasizing the "Question of Antarctica" in the UN should continue to do so.

(31) The Antarctic Treaty System's main value in the international political system is as an exemplar of peaceful international relations. It is a model of international cooperation, and hence its basic framework should be preserved. (32) Given that the resources of a nation belong to that nation, then the resources of a region, shared by a group consisting of several nations, should be considered as belonging to that group of nations. (33) The only reason that the ATS (Antarctic Treaty System) has been "successful" is because the sovereignty issue has been dormant. In order to maintain the "success" of the ATS, the claimant nations should forfeit their claims, thus ensuring permanent "dormancy." (34) Claimant nations should have sovereignty over their territories and exclusive rights to the mineral resources of their territory.