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Moon Race: The Game

An Interactive Qualifying Project

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By

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Ryan V. Hinckley
and

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Christopher Sciarpelletti

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APPROVED BY

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Professor John M. Wilkes
Advisor
Worcester Polytechnic Institute

Abstract

The live action role playing game Moon Race: The Game was developed for use as a consciousness raising event for use in a conference setting. The objective was to leave players with a greater sense of the social implications of lunar development. Accommodating up to 30 players, the game placed participants in delegations of three representatives per nation, and asked them to defend their nation's interests.

The game uses a competitive model and overlapping subplots to stimulate active discussion and interest. The game shows great potential as an effective means of communicating the importance of international lunar policy to a diverse audience.

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Moon Race: The Game

1) Introduction

Throughout the international community, a renewed interest in space exploration has begun to develop. In the US, an ambitious plan for "The Moon, Mars, and Beyond" has been set forth by the current administration. In Europe, Japan, and China, work has begun on the revitalization of both manned and unmanned space programs. Many other nations have announced their interest in entry into the global satellite market. Paralleling this are corporate and non-governmental efforts to propel humanity back into space, while making a profit.

In spite of these developments, the public at large remains, for the most part, unaware of the potential significance of a modern space race. As illustrated by the historical precedent of terrestrial exploration and colonization in the fifteenth century, the potential social implications of the return to and development of space should not be underestimated. Furthermore, the current international law governing international activities in space is clearly lacking many provisions which will be necessary to deal with the return to space if it is driven by commercial ventures.

In an attempt to bring these issues to the attention of the public, so as to foster an atmosphere of discussion, Moon Race: The game was developed. Focusing on a fictitious, but plausible forecast of a more permanent the return to the moon, this project seeks to provoke discussion and raise awareness of the issues surrounding the return to space travel beyond the earth's orbit. Through a model UN debate on the future of lunar claims and policy, participants witness first-hand the potential for conflict, cooperation, and chaos in the future of lunar development.

1.1) Current State of Lunar Policy

Modern international space policy is governed primarily by the 1967 UN Treaty on Principles Governing the Activities of States in the Exploration and Use of outer space. While this treaty appeals to the highest ideals of humanity, it lacks the enforcement and economic provisions required to address a true lunar colonization and development. The idealist and noble vision of primarily scientific, peaceful, exploration of the moon, while admirable, does fail to account for the economic realties of the modern world. The impetus for exploration and colonization has been in the past, and will continue to be, primarily financial in nature. Given the extreme financial commitment required to mount lunar expeditions, investors (both corporate and national) will require a return on their investments.

Any substantial economic use of the moon will require a type of ownership for which no provisions in the current treaty exist. The temporary, non access impeding structures and equitable international distribution of lunar resources is clearly not consistent with the needs of the mining, research, and tourism activities necessary to fund lunar colonization efforts. Without legal provisions protecting their interests, investment in the future of the moon will remain in question. Provisions must be made for the realistic use of the moon, which will ensure the economic, scientific, and sociopolitical viability of lunar development.

The 1967 treaty notably lacks any power of enforcement. This is certainly of great concern, as any law is ultimately meaningful only if someone can and will enforce the regulations. Given the disconnect between the moon and earth in communication and distance, for the rule of law to prevail, consequences for violation must be clearly defined

and established, that order be preserved and rights be protected. The Archimedes Institute Treaty Revision Project, among other organizations, has targeted the treaty in its current form as insufficient.

Currently, any state may exit the 1967 treaty with only one year of prior notice. There are no punitive provisions for exit, making the likelihood that national and corporate interests will lead to the dissolution of the treaty quite high. These nations which did exit the treaty would then be legally unconstrained in their lunar activities, leading to a new age of imperialism in space. It is clearly in the best interest of humanity that the errors of past eras of colonization not be repeated in space. Considering the potential of warfare in the modern world, the stakes are high, and cooperation is the only sure way to prevent conflict over control of the "new world" real-estate.

1.2) Introduction to LRPG Simulations

The Acronym LRPG stands for Live Action Role Playing Game, an activity with a diverse history of applications, from the entertainment-driven Dungeons and Dragons type of games, to the typical high school model UN simulations. In LRPGs, participants assume the role of a character in a story or event, and attempt to act as that character. In an educational setting, the immersion in a character role can allow a deeper connection to topic, potentially stimulating a greater interest in the subject matter than more conventional methods.

Considerable previous work on the educational use of LRPG simulations has been conducted at WPI, notably the 2003 study by Peter S. Cooper. Cooper focused both on the use of such games as consciousness rasing events, as well as within a classroom setting. He found such games to be a potentially powerful teaching tool of considerable

impact. It is on this basis that this approach was taken in addressing the issue of lunar policy.

2) Background

This project is an attempt to combine the previous LRPG development and analysis projects with the current lunar development projects, in order to create a game to inform and educate the public of the importance of lunar policy. The information obtained from the lunar development projects was utilized to develop a plausible scenario for the state of space exploration in the year 2025, while the lessons from the previous role playing game projects were used to develop a game specifically for the purpose of consciousness raising beyond a classroom setting.

2.1) Previous LRPG Projects

Under the supervision of Professor John Wilkes, a wide range of educational LRPGs have been developed, on topics ranging from the development and modernization of the Middle-East, to the protection of Earth from apocalypse by an asteroid strike. The intended audiences for these games varied, but were typically either a one-time conference event, or integrated as an ongoing part of a class.

The intended audience and occasion for an LRPG will dictate, to a considerable degree, its content and structure. In previous role playing game projects, there have emerged two distinct traditions, one in which more scripted game runs were desired, and the other preferring a more spontaneous feel, more in the LARP tradition. While there are certainly merits to both of these approaches, the distinction in style appears to be directly connected to game objectives. Scripted game runs are most suitable for teaching a specific body of material as part of a class in a non-traditional manner, while the more open-ended game runs are more often used as a means of consciousness raising in the context of a conference or brainstorming session.

The majority of the games developed at WPI have been intended for in-class use. A game designed for use in a single event would differ dramatically from a curriculum-based game. As part of a class, far more extensive briefing and coaching is possible and appropriate, due both to the multiple sessions available, and to the greater total amount of time available. This implies that materials for use in a conference are by necessity more concise than those intended for a class. The degree of character development in a class activity can be expected to greater, due to the amount of time available for players to familiarize themselves with their roles. This is analogous to the differences between improvisational verses scripted acting. Cooper's study of the use of games in a conference with little briefing beyond the character sheet was the most relevant prior project in terms of planning this project.

One notable difference between the class and conference situation not developed in Cooper's report is the actual group dynamics of a class where students know each other differs considerably from a conference setting, in which many participants may have never met each other. There is actually a greater opportunity for more role-based interaction in a conference, as the lack of pre-existing relationships makes the players more familiar with each other in role than out of role.

The allowable time for discussion of an issue in a class setting can also be far greater. This allows for the discussion of a wider range of topics in greater detail. In a conference, it is necessary to accelerate the discussion in order to cover the desired material. This is the greatest challenge in organizing a LRPG for a conference, as opposed to for a class.

The nuclear proliferation game entitled “Global Nuclear Diplomacy”, originally developed Brian Denwhirst et al., was modified by Peter Cooper for conference use. This effort represented the first attempt at conference oriented LRPG implementation. Cooper refers to the original form of the game as minimalist, written by experienced recreational LRGP enthusiasts, feeling that the addition of briefing materials to be beneficial to conference implementation. In spite of this, the target level of preparation requires the materials be distributed only one day in advance.

The situation in which the Global Nuclear Diplomacy game was run differed greatly from the context in which Moon Race: The Game was to be run. While Cooper had secured an isolated time block for a stand-alone event spanning the entire morning, Moon Race was intended for a higher degree of integration into a conference. Distribution of materials a day in advance could not be counted upon. Also, the sessions available for discussion would be brief, interspersed with formal paper and speaker presentations. It was necessary to create materials more conducive to rapid and spontaneous discussion, while balancing between the structured and independent traditions of LARP activities. It was the plan that the integrated presentations would serve as oral briefing sessions for the game.

2.2) Concurrent Lunar Development Projects

Lunar development policy has become an important topic for Division 46 IQP projects in recent years, beginning with a forecast for the future of space exploration, predicting a 2018 return to the moon, developed by Chris Elko et al.(May 2004). This forecast formed the basis for the fabricated history used in our project, Moon Race: The

Game. Many details were modified from Elko's forecast in order to provide for sufficient conflict and debate for a LRPG activity.

The space technology assessment team of Aaron Bergeron, Tim Mosig, and Douglas Fritz focused upon the potential and importance of emerging technologies relevant to space exploration. As co-presenters both at the IASTS conference and the Student Pugwash conference, this group established the potential importance of Helium-3 fusion reactors, emphasizing the presence of abundant supplies of He-3 in the lunar regolith. In many ways this contributed to the credibility of the purported economic viability of lunar exploration and mining. While this was not the sole focus of their project, it proved to be the most useful element in terms of contributions to preparing players for Moon Race: The Game.

While initially promising in terms of supplying information during the game design process, the multiple groups looking at potential technological breakthroughs met with some setbacks in obtaining their assessments of the viability and likelihood of breakthrough technologies. For this reason, it was not possible to incorporate these breakthroughs directly into the game materials. This might be something that could be addressed in the future, pending more information on the breakthrough technologies. The incremental advances predicted by Elko are adequate to allow for the game scenario to arise, a more dramatic game could be built around the emergence of a new means of reaching space.

3) Discussion

The design and development of the game was an evolutionary process, with the lessons learned from each run of the game leading to revisions and improvements. As is the case with the biological evolution process, development never ends, just the involvement of certain individuals with the development. There as always more to be learned, and incorporated into the next version of the game.

3.1) Game Design

As previously stated, the objective of this project was to create an LRPG event for use in a consciousness raising capacity at the April 2005 Student Pugwash North East Regional Conference. A high level of integration between the game and the conference at large was desired. As a consciousness raising event, the primary objective was to initiate a discussion which would stimulate interest and promote further research and discussion of the topic after the conference.

The personal connection established between participants and issues during role playing makes LRPG's an ideal method for increasing public awareness. The return to the moon, as a colonial economic enterprise, lends itself to a competitive model, as used by Shaughn Bryant and Sean Cooper in "The Chinese Conundrum" game. While a competitive model provokes interest in a topic, there is the danger that the participants will become blinded to all other perspectives other than that of their assigned national interests. To prevent this effect, while still maintaining the interest stimulating effects of a competitive game, character sub-plots were employed, illustrating the commonalties of interest among conflicting parties. While attempting to maintain a feasible scenario,

national positions were carefully chosen so that no nation would be in opposition to any other nation on every issue.

The character sub-plots ranged from assigning characters a slightly opportunistic personality, to resentment of current national policies. These plots were created to be as realistic as possible, while satisfying the aforementioned objectives. Efforts were made to ensure that the character personalities and subplots were at least plausibly consistent with national cultures. The roles were designed to accommodate a wide range of participant personalities and interests.

Participants were not assigned a character based upon their own personality, but rather role assignments were random, beyond the selection of a nation. The intent was to stimulate further involvement by removing the players from their own established views. Additionally, while an outgoing person given a more reserved character will still actively participate, the more reserved individual can potentially participate more actively if given a character with a personality more brazen than their own.

3.2) Moon Race: The Game Pilot Run

Given the stated objective of increasing public awareness of the importance of international lunar policy, a preliminary version of the game was developed, for a trial run. As this game was to be used in the single-event context of a conference, the initial test run of the game was set up as a mock conference meeting in which roles and teams had been assigned to members of other existing space policy project teams in order to simulate the predicted atmosphere and degree of preparation which a conference setting would allow the participants.

The initial trial run was conducted in as part of a WPI Student Pugwash chapter meeting, with the Lunar policy and technology IQP teams as guest participants. While different in many ways from the conference atmosphere for which the game was intended, the presence of an audience, as well as the varying degrees of knowledge and awareness of the issues among participants was a good approximation of what could be expected in the conferences at which the game would ultimately be run.

This initial run produced two important revelations, with considerable implications for future game development. The first was the dangers of what could go wrong given a lack of proper briefing and participant preparation, and the second was the potential for the development of a serious discussion despite the lack of sufficient player briefing. Although briefing materials had been previously distributed, several key representatives, such as those from the United States, Europe and China had to be replaced with stand-ins moments before the run, and were consequentially not adequately briefed. The Europeans in particular did not act in line with their vested interests at first. GM coaching and a restart of the game session were necessary to set things on the proper track.

The discussion generated in this run of the game quickly focused upon the allowable extent of claims, as well as the legal rights of corporations as actors in the international community. This arose in the context of the vast claims made by the Chinese and Brazilian delegations, which all but excluded the remaining parties from ownership of territory on the moon. While the resulting cooperation between the US, Russia, and the ESA member states was admirable, it limited the progression of the other plots in the game. The discussion evolved into a strong, unified anti-corporate coalition,

which ultimately voted in favor of the removal of the "corrupt" corporate representative from Brazil from the game entirely.

The effect of the other sub-plots and conflicts in the game was greatly reduced by the seemingly outrageous claims of the Brazilians and Chinese. While it prompted unexpected alliance formation and discussion, in many ways it was counter-productive to a meaningful discussion of space policy, as the discussion centered on the conflict between state and corporation. The mutual recognition of Chinese and Brazilian claims, while certainly in the interest of both parties, was such a divisive force in the game, that all other claim disputes were put aside, in order to oppose the rapid subdivision and exploitation of the moon by these interests.

The selection of a Planetary Society representative as the moderator for this discussion may also have contributed to the anti-corporate sentiments in the discussion, as the discussion of scientific versus economic uses of the moon arose, with the moderator showing a clear bias, as dictated by his affiliations. This was, in many ways effective from the perspective of the consciousness-raising objectives of the game, by focusing a portion of the discussion on an issue that may have otherwise gone unnoticed, and was not a major issue in traditional policy deliberations on the subject.

3.3) Pilot Run Outcomes

Based upon the outcomes of the initial run, it was clear that some modifications to the plot, as well as the nation and character briefings would improve the manner in which the discussion occurred. These changes were made within a confined time frame in preparation for a second run, at the IASTS conference in Baltimore.

The most significant change made to the game content was the addition of two new nations to the international representations, these nations being India and Iran. In discussions about the first run of the game, it was decided that nations representing the viewpoints of non space faring nations should be added into the discussion. Such nations could serve to mitigate the rapid subdivision of the moon among the large international powers. As the majority of nations are non space faring nations, their viewpoint in the colonization and use of outer space as it pertains to their terrestrial and potential future space interests was a key ingredient missing from the initial discussion.

Such representation was likely to greatly affect the discussion, as they would be arguing for rights which were beyond their current technological means. Iran further added interest to the debate, as the nation introduces its own inherent subplot to the discussion. Iran seeks a space program, but such advancements raise the question of the potential misuse of such technology for military ends.

It was decided that while the expansive Chinese claim had been a point of concern, it would remain large and presumptuous in this run, in order to initiate conflict. This claim was intended to provide the context for a discussion of the limitations and definition of lunar claims. It was hoped that an extravagant claim would force players to address the opposition between the finite available space on the lunar surface, and the multitude of nations desiring access to it, including the newly added non-space faring nations, seeking to preserve their rights to future access. This run of the game was conceived as a continuation of the prior run by the same players to rapidly convey the issues to a new audience at the IASTS conference.

The Brazilian character briefings were modified for this run as well, in order to be slightly less provocative in their blatant displays of corporate bias. Essentially, the motivations remained intact, but the degree of subtlety was increased. The intention was to make alliances and coalitions including Brazil more likely, as well as to break up what had in the previous run been a unified opposition. This would allow for more potential for more discussion relevant to lunar policy, rather than becoming bogged down on the topic of the roles of corporations in the modern international community.

3.4) Baltimore Publicity Run

Having made the revisions described in the previous section, a second run of the game was arranged, at the annual IASTS conference, in Baltimore. This venue allowed for a brief run of the game, approximately one hour, in which the game could be advertised to a diverse audience from the society and technology studies community. Such an audience seemed ideal for this type of consciousness raising event. The prior sessions would brief them on the importance of Helium 3 and the experienced WPI players would bring them rapidly into the issues.

The participants were, for the most part, the same as had taken part in the pilot run, with a few additions and substitutions. Given the limited time allowed, as well as the advertising objectives of the run, a different approach to preparation was taken. The key players were coached extensively on their positions and statements, in order to foster a more structured and rapid treatment of the topic. The opening statements by representatives were prepared in advance in the majority of cases, during the briefing session, which lasted for several hours the night before the conference. The discussion

which followed was more open-ended, but remained almost scripted, as it was heavily influenced by the preparations.

The results of this approach to the game were a far more orderly and consistent discussion, however the emergence of spontaneous or creative positions and ideas was lacking. While consistent with the objectives set forth for this run as a publicity event, an important aspect of the game was lost, in that one of the objectives was to explore the possiblilites for varied outcomes within the scenario. This clearly illustrates the risks of over-preparation in this type of LRPG event, but the audience was impressed.

The addition of India and Iran to the game worked as intended, with India acting effectively as a moderating influence, catalyzing compromise. The issue of the need for claims and ownership of the moon was also introduced, which added considerably to the discussion. Although the need for final ownership to protect investment activity was proposed by the US, Brazil, and China, the concept of lease-type or limited duration claims arose. This detail was added during the briefing period, with the intended outcome of differentiating mining claims from more colony-oriented claims to land and water.

In the materials provided to the Indian delegation, a sentiment supportive of the regulations and sentiment behind the 1967 treaty were included, along with the possibility of the creation of a UN space agency, to allow all nations access to the moon. The results of this were limited, as there was insufficient support from other nations. Though the votes held in the general assembly by such nations would be numerous, the majority of those with roles at this event were space faring nations capable of getting there soon.

The Chinese claim remained problematic, as its size was clearly a deal breaking factor for all interested parties. Rather than creating the desired discussion on the nature of a valid, reasonable, and legitimate claim, participants instead argued over the specific Chinese claim. This may be due to the involvement of the same players as the pilot run, however it was determined that this game element simply was not working as intended.

3.5) Second Round Game Revisions

In preparation for the final showcase run of the game, to be held at the regional Pugwash conference, the game scenario and character cast were expanded upon to accommodate a greater number of participants. The character roster was expanded from 18 to 30 characters, and two major topics were adapted into the scenario. The scenario was expanded to now deal with the additional topics of research in outer space and the rescue and compensation obligations of nations in space.

The run of the game was to be integrated within the conference at large, with the lectures and presentations given to provide a context for the debate. While the correlation between the presentations and the game varied, the majority of the presentations contributed in some way to the players grasp of the importance and likelihood of lunar development. The conference speakers highlighted the economic potential of the moon, in particular Helium 3 which could be used in fusion reactors, dispelling any question as to the importance of these resources, found in greatest abundance on the moon. The speakers also highlighted current business, international, and military implications of space policy.

The research topic would likely be raised from plans for nuclear facilities on the moon. The topic was meant to stimulate discussion concerning the legality of both

nuclear and biological research and facilities upon the moon, as many corporate and national interests will view the moon as a potential haven for research which is currently regulated or outlawed on earth. Nuclear power is likely the key to lunar society, and thus this particular field of research would be of great interest to many parties, of which there are both advocates and opponents of advancements in nuclear technology.

The space rescue issue came to focus upon a scenario decision to have the Americans rescue an endangered Chinese Taikonaut. The Americans came to demand compensation for the resources expended upon the Taikonaut, and the Chinese demanded full disclosure of any technology obtained by the Americans from the Chinese vessel in which their Taikonaut had crashed upon the lunar surface.

The Chinese claim was revised, as it had been problematic in the previous runs. The claim has been reduced from the entire southern hemisphere, to a crater on the southern hemisphere, retaining the majority of the water access. The objective was to retain the extremist nature of the claim, but reduce it in order to foster a resource-oriented discussion of claims, rather than a unified block resistant to the Chinese claim. This was also intended to bring up the issue of resource sharing in the context of claims. The Chinese briefings were modified to extend offers to lease water and mining rights on their claim.

The character roster was expanded to 30 characters, bringing national representations up to three delegates per nation team, the typical size of the proposed IQP teams for the next year. The new characters were designed to expand upon existing subplots within the game, and to develop new subplots within the context of the newly added research and space rescue topics. Several of the new European representatives

were intended to add some division among the ESA representatives, especially concerning the idea of nuclear and biological research in space. New characters were also designed with the intent of subtly expanding the corporate interests beyond their current national strongholds, to be thinking in international conglomerate terms.

3.6) Final Conference Game Implementation

Having revised the game as described above, the game was prepared for distribution. The initial intent was to have approximately 90 players, in 3 separate runs of the game. It was intended that materials would be distributed to national delegation teams from various Student Pugwash USA chapters, and other attending organizations. As the teams would be signed up approximately 2 weeks in advance, the degree of preparation was expected to be higher than in previous runs, allowing for the delegations to prepare their statements and arguments in advance. Due to often opposing subplots, the character materials would only be available to those assigned the roles, and not to the entire delegation.

Difficulties in securing advance registration and game material distribution, as well as other conflicting events lead to these initial objectives failing to be realized. As a result, the default distribution format was employed. This consisted of the participants receiving their game materials as they arrived, the night before or the morning of the game. This obviously changed the degree of preparation, and thus the degree to which the character subplots would be played out.

While not an ideal situation, in many ways this allowed for a test of the game as a single day consciousness raising event, for use at conferences of unknown attendance, and in situations where advance preparation is not possible. It should be pointed out that

with more notice, the game materials could be adapted and optimized for a more structured run as was originally planned upon.

The conference schedule dictated that the game would be run in two blocks of one hour each. This format allowed for outside negotiation between the nation teams, an element which had not been present in previous runs, but could certainly allow for greater development of the character sub-plots. These negotiations were also expected to enhance topic development, by allowing for the formation of coalitions. While undoubtedly some corruption would be introduced, this was not necessarily in opposition to the intended function of the game; as such dealings can create greater interest and involvement for some players.

To supplement the game materials, a brief out of simulation briefing session was held prior to the run. As many participants had not had sufficient time to fully review their game materials, this session was intended to answer any questions posed by the players, as well as to highlight the most vital parts of the scenario. Unfortunately, due to time conflicts, only approximately half of the players were in attendance for this first session.

The chapter representing George Washington University was the only outside chapter represented. As the US delegation in the simulation, they were the only team to be fully briefed. The remaining teams were played by WPI IQP teams scheduled for 2005-6 projects. The degree of familiarity between these teams varied. The degree of participation ion the conference amongst these participants also varied, the majority were at the afternoon rather than the morning sessions.

In order to accommodate the guest speakers for the conference, additional supplementary roles as UN officials and NGO representatives were hastily added. These roles were intended to add to the game, by allowing experts in space and policy fields a leading role. The intent was that these roles could provide additional information, and when needed guide the discussion. While not fully developed roles, the speakers certainly proved a valuable addition to the game, particularly in one instance, where the discussion of future access for nations currently unable to reach the moon arose. One of the speakers aptly compared the situation to the current state of satellite position registrations, in which rights to access can be reserved, with a seven-year window to utilize the registered location.

In the morning session, despite the absence of anyone to play several delegations, most notably Japan and Iran, the discussion proceeded, and an initial agreement on the necessity of some sort of internationally validated claim system. This, while seemingly a small step toward any final resolution, paved the way for later discussion of the definition and enforcement of claims.

Considerable opposition to a first come-first serve claim basis had already begun to arise, with surprisingly strong support from the US delegation. It was expected that such an initiative would have been presented by ESA and India; however, it would appear that the US support arose as a reaction to the Chinese hard-line position on their South Pole claim, on the sole basis of the questionable initial presence. Considerable historical references to the errors past colonial periods were, as expected, cited to as rationale for this opposition.

As a result of the corporate nature of many of the characters added for this run, the expression of anti-business sentiments was greatly reduced. Across the entire spectrum of nations, there was recognition of the importance of the economic issues, as well as a respect for scientific uses of the moon. This allowed for a discussion of how it would be possible to balance the needs of research and business. This provided a more realistic discussion, which also proved more thought provoking for all involved. The bias of the Planetary Society representative was quite apparent on this, which was certainly in character. This resulted in a questioning of the impartiality of all of the UN representatives, which would continue into the afternoon session.

The issue of claim duration also arose, but no resolution ever was reached before the lunch break. Essentially the mining interests favored the potential for larger areas to be temporarily claimed in order to mine the Helium 3 deposits, then made available to for other uses once the mining activities were complete. Safeguards on mining activities in order to preserve areas of scientific interest in these claims were advocated by the US, as well as NGO representatives.

The US and China opposed these temporary claims, arguing that the resulting lack of accountability for activities was dangerous. The European nations were divided on this issue, on one hand attempting to prevent themselves from being excluded from the moon by immediate permanent claims, but on the other hand, wanting to be able to secure permanent claims for themselves later, with the resources intact. They feared that the corporate strip-mining of the moon subtly implied by the LunaCorp representative would exclude them from any economically viable lunar activities in the future. These nations were aware of the need to finance their ventures, and sought grantee that their

claims would retain valuable resources and prove to be profitable, regardless of how long such a return would take.

During the lunch break, private negotiations between parties took place, to which the game officials were not party. Rumors of bribes, corruption, and other less than legitimate dealings circulated, but could not be confirmed. It was clear that some delegations, the US in particular, used this time to re-group and formulate a unified position, while others more actively pursued their character sub-plots. This can in part be attributed to the fact that the US delegation consisted of a complete team from George Washington University, and as such were more comfortable with their own team than with the other teams. They did, however, participate in some dealing and negotiation during the presentation on nuclear propulsion following the break. Most notably active in negotiations was the opportunistic Russian delegate, who actively sought and obtained through various means sufficient support to oppose LunaCorp. It is believed that promises of access to Russian technology were made, but this again cannot be confirmed. Russian expertise and resources were made available, for a price, to the UN Secretary General if desired, to create a UN Space Agency to maintain order upon the moon. The Secretary General seemed interested in the offer, but did not instruct the UNOOSA representative to act upon it.

For the afternoon session, there was a small turnover in some delegations, and a large increase in participation, with the full roster of 30 characters and 10 nations being filled, with some additional participants acting as generic national representatives, with their own interpretations of a character. Due to these factors, the afternoon session did not pick up exactly where the previous session had ended. The afternoon session began

with the question of whether to discuss the means of validating a claim, or the definition of a claim.

The vote to discuss the authority for validating and regulating claims proved in retrospect to be a mistake, as the delegates were unable to create a conditional regulating body prior to having determined the claim definition which it would enforce. The US in particular opposed the proposition that the United Nations Organization on Outer Space Activities (UNOOSA) be granted the authority to record, legitimate, or govern claims. With the support of China and Brazil, they proposed that the governing body should be entirely separate from the UN. The contending proposals for governing organizations for lunar claims were repeatedly defeated, due to seemingly minor, but significant issues posed by the wording of the many proposals. A lack of solidarity among the ESA nations allowed the US and China to block the passage of all proposals with ease. Iran walked out in protest, there would now be only nine votes.

The Russian delegation, recognizing the dangers of allowing the US and China to dominate the discussion, requested and were granted a brief recess, to confer with nations with a vested interest in the formation of a governing body. ESA with its three votes finally united with Russia and India formed a unified voting block. The US delegation, at this point caught in their double-dealings between China and Japan, was unable to block the resulting coalition from a forced vote granting UNOOSA temporary and conditional authority. This brilliant maneuvering by the Russians lead to a most unexpected outcome. UNOOSA now was authorized to temporarily govern claims as they saw fit, with almost no oversight, and no clear definition of a claim. While clearly less than ideal, this outcome was viewed as the only means of preventing the US and China from

dominating lunar activities. Both the US and China immediately called into question the right of the UN to govern lunar activities. These nations moved into a defensive position against an activist secretary general backed by European and Russian support.

It is at this point that time on the afternoon session expired. Certainly, less of the material had been discussed than was expected, however many of the important policy issues had at least been mentioned. In spite of this, the majority of participants felt that that much had been accomplished, and found the difficulty in reaching consensus to be an accurate representation of the real international political atmosphere.

4) Results

Assessing the performance of a consciousness raising LRPG in a qualitative sense is difficult, even for one who has participated in and observed the activity. As a result of this, it is necessary to combine observations, discussion, and survey results to determine if the game served its purpose adequately. The subjectivity of this type of evaluation makes any outcome more speculative than conclusive.

4.1) Game Observation Summary

Throughout the three runs of the game, despite varying levels or participation and interest, the majority of players were able to contribute in a meaningful manner to the discussion, and as such lively debate arose. The dramatic differences in how the same scenario played out as the result of the changing cast of participants surprised even the game developers.

A recurring issue in the game was the difficulty of reaching any consensus. While initially, this appeared to be a detriment, upon further analysis, this illustrates the importance players assigned to the issues. The adamant manner in which players defended their nation's positions illustrates a high level of interest and involvement. This supports the survey outcomes discussed below, indicating the game did in fact stimulate interest in the topic. Players also commented on the similarities to the actual international political process, in which the resolution of such issues takes exorbitant amounts of time.

4.2) Survey Results and Analysis

Following the final run of the game, each participant was asked to fill out the survey form found in Appendix S. The intent was to evaluate the success of the game in

terms of fostering awareness and interest in lunar policy. Unfortunately, the response rate of less than fifty percent made the results less conclusive than would be desired. In the eleven surveys that were returned, however, there were definite trends to be noted.

The first apparent trend was that despite the generally high reported level of interest in space policy prior to participation in the game, awareness of the policy implications of lunar exploration was quite low. This supports the initial impetus for the project, that consciousness-raising regarding lunar policy and its social implications was necessary and worthwhile.

The general increase in awareness after having participated in the game was significant in the majority of cases, which indicates that on this level, the game was successful as a consciousness raising experience. It should be noted that it is difficult to isolate the effects of the game from those of the conference at large, however as the game was designed as an integrated component of the conference, with the presentations supplementing player briefings. This is sufficient to consider the game successful in increasing awareness and engagement of the iussue. The numerical data supporting these claims can be seen below. The rating scale used was a 1-5, with five indicating the greatest degree of awareness or interest, and one indicating the least. The average awareness of the importance of lunar policy prior to participation in the game was a 2.91 on this scale, with a final awareness ranking average of 4.36. This indicates a substantial increase in awareness among respondents. The sample group indicated an average interest in space issues of 4.3 on the same scale, while ranking the average social relevance of lunar policy merely a 3 prior to participation. In 73% of responses, an increase in awareness was indicated.

Table 1: Awareness of the Importance of Lunar Policy

Initial Awareness	*Awareness After Participation*	*Game: Informative and Relevant ?*	*Additional Research Interest*
3	3	4	no
2	4	4	yes
2	3	3	yes
4	5	3	yes
2	5	4	yes
3	5	4	no
4	4	5	yes
2	5	5	yes
3	5	4	yes
2	4	4	yes
5	5	4	yes
Average	**Average**	**Average**	
2.91	4.36	4	

Table 2: Pre-Conference Interest in Space and Social Relevance Thereof

Interest In Space Exploration	*Social Importance (prior to simulation)*
4	3
3	2
4	3
4	2
4	3
4	2
4	4
5	3
5	3
5	3
5	5
Average	**Average**
4.3	3

5) Conclusion

In its initial objective of raising consciousness of the importance of lunar policy, Moon Race: The Game was by all available observations and measures a success. Both participants and observers indicated that in the majority of cases, they found it to be an engaging and educational experience. This indicates that the game was, to a considerable degree, a success, and a worthwhile endeavor for further development. It also validates LRPG activities as an effective method for engaging conference attendees in an informative discussion.

5.1) Summary of Game Outcomes

As mentioned above, the game was successful as a consciousness-raising tool in all three runs. For an initial version of the game, this is clearly an adequate indication that the game warrants further development and distribution. This summary, as well as the recommendations found in section 5.2 are intended to facilitate that process.

The majority of participants found the discussion to be sufficiently engaging to be worth the time invested, and many indicated that they would recommend the game for use in another class or conference. In spite of this, many felt that the debate did not progress as quickly as they would have desired, and as a result of this, many topics of interest were not discussed in full. Recommendations to remedy this can be found in the following section.

One respondent to the survey indicated that the game may be applicable to a classroom application. While clearly changes to the materials and overall design of the game would be required to adapt it to this use, it has been shown that LRPG's can be

valuable and effective tools in the classroom. The broader the audience to which this game can be exposed, the better from an awareness perspective.

5.2) Recommendations for Future Development

Currently, Moon Race: The Game is complete, in the sense that it could be distributed to event and conference organizers for use, and run successfully in its current form. There are, however, improvements which could be made as the next evolutionary step in the development process which could make it more effective, as well as easier to implement.

The final run of the game made it abundantly clear that for a run of 30 players, a more structured discussion would certainly accelerate the pace of discussion, and lead to more defined policy outcomes. In this large of a run, it is necessary for the moderator to define the procedural requirements for the discussion, as well as to direct the discussion when needed, moving quickly away from issues in which resolution is currently not likely. This would require a more detailed informational out of simulation briefing given to all participants, as well as perhaps a summary of parliamentary procedure added to the briefing packets. The moderator should also be provided with the same materials and a specific agenda.

In order to accelerate the discussion, it might be useful provide players with pre-defined motions and propositions, which they can use in the discussion. This would reduce the time spent in developing the wording of motions, while only minimally constraining the creativity and spontaneity of the discussion. This method was recommended in the out of simulation de-briefing period, and certainly seems worthwhile, particularly if the game is to be run with minimal prior preparation. Given

more preparation time, the players could also be asked to formulate their own proposals in advance.

Many times throughout the discussion, even the best prepared players had to refer to their game materials in order to verify their position on issues, and to find key points concerning the positions of other nations. While the current briefing packets are certainly good in terms of preparation, their degree of detail makes using them for reference during the discussion difficult. For this reason, it might be useful to formulate a quick reference sheet for each character role, improving access to crucial information, and thus improving the flow of the game. Again, the balance between a creative discussion and a scripted one would need to be addressed. The greatest benefit from these reference sheets would be to players who for whatever reason had not been adequately briefed, but wanted to participate actively. This would have most likely improved the experience of the walk-on players in the afternoon session.

The inter-party negotiations over the lunch break were a valued addition to the game, and as such adding additional times for this type of discussion would be beneficial to the role playing experience, time permitting. This will be more of a conference scheduling and organization issue, but will definitely improve play if it can be implemented. These out of session communications contribute primarily to the players' sense of their character, and lead to greater integration of character and player. Such sessions are also useful in terms of idea generation, bringing forth proposals which might never have been presented in the full assembly discussion. These discussions are also the best place for the character sub-plots to play out. The outcome of increased interaction of

this type may be difficult to measure, as the moderator will not be privy to these discussions in most cases.

The structure of the topics for discussion lends itself to another potential alteration. Currently, there are three main topics, claim rights, research regulation, and rescue obligations. As time constraints have limited the ability to discuss even the first or these topics fully, it might be advantageous to structure the debate in three sub-committees, which then submit findings to the full assembly for a vote. The three characters per delegation allow for one representative to attend each sub-committee. The The proposed schedule would be as follows:

1) *Teams receive briefings, discuss and formulate positions*
2) *Representatives sent to first sub-committee session*
3) *Break for unstructured discussion and negotiation*
4) *Second in committee session, vote and conclude on recommendations to submit to full assembly*
5) *Break for unstructured discussion and negotiation*
6) *Full assembly, committee proposals presented and discussed*
7) *Brief negotiation break*
8) *Final Assembly votes on acceptance of proposals*
9) *Out of Simulation Debrief and discussion*

A final recommendation for future work on the game would be to attempt to integrate the elements of the conference at which the game is being run into the game where applicable, such as the involvement of he conference speakers in the game. The

degree to which this is possible will obviously vary with the nature of the conference, as well as the willingness of the speakers to participate.

In order to develop a greater degree of integration of game and conference, it would be useful to focus discussion on the topic of a prior presentation. This would require advance knowledge of the specific presentations, and a conference schedule developed accordingly. Utilizing conference speakers in a moderator role during the discussion of the issues on which they are experts could also enhance integration. This would allow the speakers to stimulate and guide the discussion.

While Moon Race: The Game remains a work in progress, it has certainly advanced the WPI LRPG IQP program, by illustrating the promise and potential of spontaneous, in-role discussion initiated by oral briefings, rather than exclusively developed from written briefings.

The interaction between a conference and an integrated role playing game enhances the experience for game participants and conference attendees greatly. It is likely that a spontaneous, conference integrated event is more effective in a consciousness raising capacity than a classroom event. To achieve a comparable effect in a structured classroom atmosphere, the inclusion of supplementary assignments may be necessary.

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Appendix A: Game Scenario

Welcome to the first session of the United Nations special committee on the ownership and utilization of lunar resources. The objective of this conference is to develop a fair and mutually agreeable resolution and establish a precedent for the definition of a legal lunar claim.

The year 2025 has seen the culmination of two decades of renewed interest in space. Recent developments in lunar exploration and colonization require an international policy on lunar claim rights to diffuse rising international tensions. A structure for the appeal and evaluation of lunar territory claims needs to be established.

Current international law regarding lunar territory claims is limited to the Outer Space Treaty of 1967, which provides for the ownership of bases and vehicles in space, but prohibits the ownership of any part of a celestial body. The non-punitive exit provisions of the treaty have led the United States and China to leave the treaty. France and Germany have announced they also intend to withdraw from the treaty.

Lunar bases have already been established by China, the United States - Japanese coalition, and Brazil/Lunacorp partnership. A host of other nations are attempting to secure future access to the lunar surface as well as subterranean mineral deposits discovered by unmanned reconnaissance missions. Additional pressure is being exerted on this committee by non-space faring nations to protect their rights to future access.

The American-Japanese base and the Chinese base are both at the South Pole, with tentative cooperation in water ice mining activities. Water yields far below expected have created tensions between these bases and their governments, and we fear the situation is about to get out of hand.

The European Space Agency (ESA) has also claimed lunar territory based on their unmanned missions exploring the lunar North Pole. These missions have found a large crater suitable for a future base. ESA intends to establish an initial manned presence within a year with hardware derived largely from existing Russian technology and manned space experience.

By this time, however, the Brazil/Lunacorp base intends to mine the platinum and water ice in this crater, with further plans to develop a refining location for the collection of Helium-3 from far-reaching mechanical harvesting devices. This claim is also backed by the United States since Lunacorp uses American astronauts and technology.

Appendix B: Brief History of Lunar Exploration (2010-2025)

In 2011, The Chinese announced their intentions to land on the Moon on December 12, 2018. This date was publicly presented as the soonest possible landing, since the Chinese called for a lunar orbital station prior to a manned landing.

In the same year, the US and Japan announce their joint effort to achieve a manned lunar landing by September 30, 2018, three months before the Chinese. The simplified mission design and lack of a preliminary lunar orbital station is what gave this mission the quicker timeline.

In preparation for lunar surface operations, both land supplies at the lunar South Pole. Chinese Taikonauts are sent into lunar orbit to start construction of their space station. Once completed, Taikonaut Chin Lang asks Beijing to remain on the station to witness the US-Japanese landing from a box seat. Beijing agrees.

While the rest of the Chinese Taikonauts returns to earth, Chin remains on the station. On the day the US-Japan team is to land, Chin reports that a problem on the space station has led to a shortage of oxygen. He requests permission to land on the lunar surface to retrieve some of the oxygen reserves based at the lunar South Pole. Under orders from Beijing, he immediately evacuates the “damaged” orbital station with the “experimental” lunar lander that is docked to it. Chin landed on the lunar surface 10 hours before the US and Japanese Astronauts.

Upon the arrival of the American and Japanese astronauts, Chin eats dinner with his fellow space farers in a great show of camaraderie. The event is hailed around the world as a tie in the race to the Moon, and the "stranded" Chinese Taikonaut (as he is described by the US Press) is offered the hospitality of the US Base for the three months.

While awaiting the landing of additional Chinese Taikonauts, Chin assists with set up of the American-Japanese base. When the Taikonauts arrive on the lunar surface, Chin returns back to Earth as a national hero. Based upon his landing prior to the American and Japanese astronauts the Chinese government claims mining rights to the entire Southern Hemisphere. Land lease and sharing provisions are included in the claim specifically for the American-Japanese base.

Appendix C: Introductory Address

Hello, and welcome to the second UN special session on lunar policy. On behalf of the international community, and the secretary general, I would like to thank all of the esteemed representatives for your attendance.

The objective of these talks is to determine an equitable and mutually agreeable resolution to the issues that have arisen in the recent period of lunar exploration. Today's discussion will focus on three key areas of lunar policy:

I) Claim Rights

→ Claim definition and requirements
→ Validity of existing claims
→ Resource rights claims
→ Claim Durations

II) Research Regulation

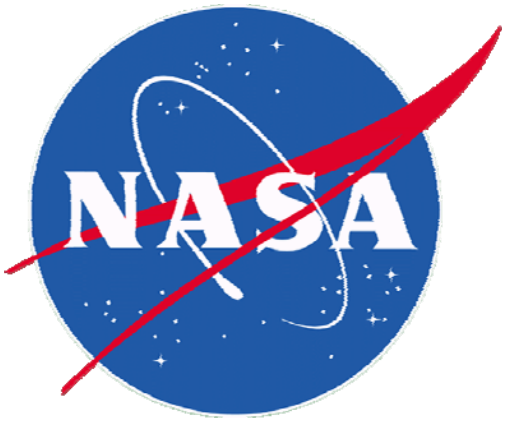
→ Scientific vs. economic use
→ Biological testing and research
    -Allowable?
    -Regulation of
→ Nuclear research
    -Allowable?
    -Regulation of
→ Waste Disposal and Cleanup
    -Financial obligations
    -Regulation of
    -Liability for contamination

III) Rescue Obligations

→ Financial accountability for personnel
→ Return of rescued personnel
→ Resource limiting rescues…acceptable risk of rescue.
→ Protection of intellectual property during rescue operations

Appendix D: United States Nation and Character Briefings

American Delegation Briefing



The United States has made it back to the Moon, with the assistance of Japanese industry and space technology. The Moon, however, is not the ultimate goal.

NASA has long spoken of its goal of reaching Mars, and sees the Moon as a stopover along the way, a practice round before attempting a Mars mission. American military and commercial interests, however, see things differently. Although local resources for habitat and life support have proven scarcer than expected, economically viable resources have proven to be abundant.

Tensions are strong between the cooperative American-Japanese base and the nearby Chinese base at the South Pole of the moon. These tensions are the result of the scarcity of habitat resources, particularly water ice, and disputes over who has mining rights to the abundant economically valuable resources which have been discovered.

This scarcity of resources has only strengthened NASA's resolve to bypass the Moon and strive for Mars. Although the American government made promises to Japan concerning a commitment to a permanent Moon settlement, such an idea is of little interest to NASA. The plan at NASA HQ is to turn over the base to Japanese operation, if not control, and concentrate on reaching Mars.

Tensions are further complicated by the resentment felt by the US and NASA towards the underhanded way in which the Chinese reached the moon first, and sought to claim mining rights at the South Pole on this basis. The US has yet to receive any compensation for the rescue of the Tikonaut whose landing is the sole basis for the

Chinese claims. While it is certainly the obligation of any civilized nation to protect human life, the costs of life support on the moon is quite substantial, and this burden should not fall on the American taxpayers.

America's primary interest concerning the Moon is to have water and mineral rights as well as a training ground and potentially a launch site of lunar resources toward Mars. After NASA has moved on to the new frontier, there is still going to be a need to keep the door open for US corporate interests to exploit the profitable energy and mineral resources of the Moon.

Congress and the Aerospace industry expect to cash in on the investment that was necessary to get there, first in 1969 and then get back there in 2018. NASA has communicated to China that its' presence upon the Moon in force at the South Pole base is temporary, garnishing the promise of support for a future Martian territory claim. In the reverse of the situation on the lunar surface, the US will operate the main base on Mars with a small scientific presence in a rented habitat reserved for Chinese use.

The United States supports the territory claims of Lunacorp despite the NASA's reservations toward this uncontrolled expansionary presence. This is likely to create conflict between NASA and the other national space agencies. Lunacorp has access to NASA and Air Force Space Command technology but is not strictly answerable to the US government.

Lunacorp is incorporated in Brazil and primarily uses American employees and technologies in their lunar efforts. However, Lunacorp has a native satellite and rocket technology sector that cooperates closely with the Chinese. There is reason for concern

that American technology will pass through Brazilian hands to China, a matter of great concern to Space Command.

. Lunacorp previously paid NASA to train its astronauts but has since taken over responsibility for this in its new Brazilian base of operations. Lunacorp has close ties to government defense contractors Lockheed Martin and Boeing. Their success on the Moon can prove to be both of profit and advantage to the US strategically.

Open support of Lunacorp claims is advised against by the US State Department, as it will be damaging to already strained relations with the Europeans. Nevertheless, American diplomatic support has been promised to Lunacorp by several Congressmen who are on committees controlling the NASA budget. Corporate interests will primarily and openly be defended by the Brazilian delegation, and the US will tacitly acquiesce to that position.

Character Information: Arthur Collins

You are a NASA visionary who has been asked to accompany the American diplomat to this conference to represent the opinion of NASA. When you were fresh out of college you cut your teeth working on the famous Vision for Space Exploration made by President George W. Bush in 2004. While there have been the inevitable hiccups along the way, NASA is still committed to that vision.

Ever since the glory days of Apollo NASA's ultimate goal has been manned missions to Mars. This goal was not always official since there was a long period of time when manned operations beyond Earth orbit was prohibited politically.

The Moon is seen as essentially a test bed for Martian operations. NASA's mission is above the political games which you are sure to witness an inevitably participate in during these proceedings. You have little taste for confrontation, but would prefer if operations in space were isolated to the NASA mission and the Europe's similar Aurora program.

You also harbor strong resentment towards Lunacorp on many different levels. They just want to exploit the moon and have completely disregarded the long term implications of their reckless policy. In the early days of Lunacorp NASA HQ decided it would be best for NASA to assist private ventures, and as such NASA trained Lunacorp astronauts and provided detailed schematics and technical expertise to build their infrastructure. Despite all these good intentions Lunacorp dropped NASA at their earliest convenience. Nevertheless, diplomatic support has been promised to them.

Character Information: Brad Cook

You are the American diplomat to the United Nations. You are often in contact with American politicians and lobbyists. You are calm and reserved, yet firm in your position. You are willing to compromise and play both sides against the middle as necessary to achieve your goals.

America rarely speaks with a single voice, and representing the American State Department, the U.S. military, corporate interests, and academia is without question the most difficult aspect of your job.

You are aware of the immense economic potential of the Moon, especially with the prospects for Helium-3 and exporting local resources to Mars. You have talked with

representatives of Lunacorp and several other American corporations regarding the monetary benefits of keeping a lunar foothold after NASA focuses its efforts on lunar missions.

Meetings with Secretary of Defense have revealed the military's interest in maintaining an American lunar base. This is primarily because the Chinese space program makes no distinction between civilian and military interests. American rights to resources on the Moon have already been severely curtailed by the Chinese, and even if these proceeding reach a reasonable compromise, enforcement of the agreement will inevitably require a military presence.

To prevent an international crisis the United States has up to this point given into the Chinese territory and resources claims, with the understanding that NASA is not on the Moon to stay. This is in direct contradiction to Japanese obligations, where we promised to provide support for a permanent lunar colony in exchange for their needed territory. This situation must be handled carefully to keep both allies and not precipitate a breakdown in diplomacy.

Character Information: Erica Hiltz

You have worked extremely hard to become a renowned diplomat, and take great pleasure in the respect that your position commands. Some feel that you overstate your importance, and find you to be arrogant. You consider them to be merely jealous of your accomplishments.

You are well versed in law and economics, which are the primary issues in this discussion. Clearly, Arthur needs to be reminded that science exists to serve humanity,

not the other way around. He is clearly unsuited for this mission; his idealism is not economically or politically viable.

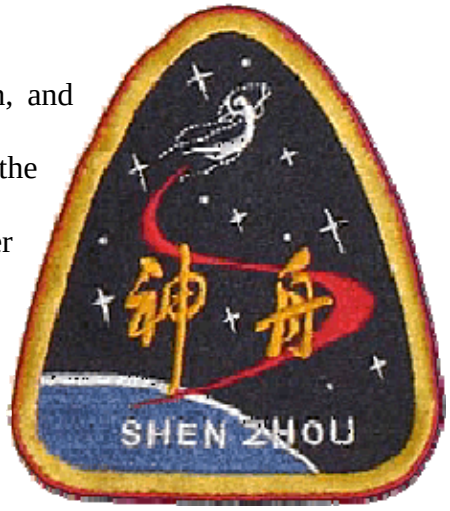
You find Brad somewhat amusing, even if many of his positions on the issues are merely watered down versions of your own. Clearly he has gotten along in life by perpetually playing both sides of any issue. His support will be easy to secure, but not necessarily or much use.

Through your extensive network of political and industrial connections, you brokered the current arrangement between NASA and LunaCorp for the licensing of technology, as well as for the training of astronauts by LunaCorp. While some at NASA feel that you sold them out, it was a sound business decision, and they should have voiced their objections at the appropriate time.

You support further development and economic activity on the moon, with corporations as the primary actors, facilitated by nations. This activity can include any biological or nuclear research that investors deem worthwhile. Any attempts to limit these activities are the actions of sentimental fools, and are in opposition to American (corporate) interests.

Appendix E: Chinese Nation and Character Briefings

Chinese Delegation Briefing



The Chinese were the first to reach the moon, and although the Americans re-landed with the help of the Japanese shortly afterward, the Chinese claim to a water rich crater on the southern pole of the Moon is valid.

This claim entitles them to control the majority of the water ice resources on the lunar southern hemisphere as they see fit. Cohabitation of the moon is inevitable, but the Chinese government wants compensation for access to its resources at the South Pole, and use of its lands surrounding that site. China views the moon both as militarily and economically exploitable and many of the People's Republic personnel upon the moon are trained by and connected to the military.

American representatives have approached the Chinese government, requesting compensation for the expenses associated with the rescue of the Taikonaut. While it is certain that the US will receive compensation, this will only occur when it is certain that no proprietary information was obtained by the Americans from the landing vehicle. It is in the best interest of China to set a precedent of reasonable compensation and protection of proprietary technology.

Since the Americans have promised that their presence upon the moon is a temporary one, the PRC government has seen fit to support the territory claims the US will later make on Mars. With NASA expressing only the slightest of interest in the Moon, only the Japanese JAXA and Brazilian Lunacorp remain as competing interests.

The territory claims of the European nations through unmanned missions is not recognized, nor are the rights of any non-space faring nation which may attempt to stake a claim to its rights upon the moon without the capability to land on it.

The Chinese are willing to support the claims of the Brazilians representing Lunacorp, so long as Lunacorp is willing to accept the "protection" of the Chinese government, and purchase its water and oxygen supplies through the Chinese concessionaires. The Lunacorp base is located on the far side of the moon in the northern hemisphere, and is not in direct competition for Southern life support resources.

The Japanese-American base, on the other hand, is located in close proximity to the Chinese base. Resources are currently shared between the bases to avoid direct international conflict, but the Chinese do not wish this to be a permanent arrangement.

The Chinese have been building up personnel at the South Pole in order to locate and stake out rich mining sites for economically viable minerals such as cobalt, platinum and iron to be used in trade and local construction.

The Chinese also plan to investigate the availability of Helium-3, which is expected to be available throughout the surface but marginally concentrated at the equator. There are plans to establish a road to from the southern hemisphere to the equator. Water storage facilities, a nuclear power plant, and an oxygen mining facility to open up the region for rover mining of the surface are also in the works.

The hope of the Chinese is to be operating in both the northern and southern hemispheres before any European power can land a manned mission. Establishing extensive operations along the equator is also vital. A monopoly on locally obtained water and oxygen would effectively allow control of all activity the southern hemisphere,

where 80% of the water is located. This should, however be downplayed in these talks, as this might lead to an undesirable alliance of opposition.

Character Information: Jun Mang

You are the son of an important military official, and you receiving this diplomatic position is a reward for his service. Educated in America, you care little for the party, or all the things on which your father has wasted his time. You do enjoy the wealth and benefits of power, however. In order to maintain your position, you typically do not voice your opinion.

You are aware that this is precisely why you have been sent on this mission, and it doesn't bother you at all. It is a nice vacation really, and you will enjoy it as such, all you have to do is cast your vote in accordance with the decisions of your superiors.

You think that the claim made by your nation is excessive, however you will certainly keep this to yourself, as dissent is unwise and perhaps even unsafe. You are familiar with both western and eastern culture, and as such may be of service should the need to broker a deal with any western party outside of the proceedings arise. Perhaps not though, as in the past you have always gotten by through remaining unnoticed.

Character Information: Liu Mao Cheng

You are a loyal party officer of high military standing within the space division. You have been sent to this conference to advance the goals of the PRC, and perhaps your own career even further. You have little patience for westerners in general and their constant bickering about the illegitimacy of China's right to its territory claims.

Nonetheless, it is not your place to openly argue with the Americans and Europeans. You will follow your diplomatic superior's lead and provide your insight into the military implications of the Moon.

It was your planning that began the personnel buildup on the Moon which will lead to China's inevitable lunar domination. A military confrontation is inevitable and you make sure all Taikonauts assigned to lunar surface operations are go through the lunar ground combat training you developed.

Despite NASA's claims of only temporary operations on the Moon you are aware that America has every intention of staying to support U.S. corporate interests and a Japanese colony. Chinese intelligence has learned that the U.S. Department of Defense already is working up scenarios to defend these interests.

Character Information: Qin Tsun

You are from the ministry of foreign Affairs, and head delegate to this conference on the ownership and utilization of lunar resources. You serve as China's permanent ambassador to the UN headquarters in New York. You are willing to make some concessions, as long as they benefit the great People's Republic.

You are the genius who engineered the plan which allowed China to claim the southern hemisphere before the Americans and Japanese could get there. Forcing the Americans to rescue your Taikonaut per the guidelines of the 1967 Outer Space Treaty allowed China to land first without sufficient life support or a vehicle to get back. Due to your diligent planning, all evidence that the oxygen leak onboard the lunar space station was a hoax has been destroyed and replaced with forged mission logs. The United States

now suspects a lack of honesty about the event, but there is no way they will be able to prove it.

You have garnered promises from the Americans that their presence on the Moon is only temporary. Since they are the only other people in the southern hemisphere, there are no grounds to challenge the validity of China's territory claim by other nations. The complaining of lesser nations which cannot make a manned claim is ludicrous and is not important enough to get involved in.

Appendix F: Brazilian Nation and Character Briefings

Brazilian Delegation Briefing

The Brazilian delegation appears in this conference on behalf of LunaCorp, a multinational collaboration of aerospace and investment interest, most notably Lockeheed Martin, Boeing, and Exxon. LunaCorp operates under the authority and sovereignty of Brazil, in accordance with the 1967 UN *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space*. As such, Brazil is responsible legally and politically for the activities of LunaCorp. In return for this sponsorship, Brazil has received considerable economic benefit, from the design, construction, maintenance, and operation of its launch facilities. The strategic launch facility location near the earth's equator is of considerable technical value, in terms of the ease of access to orbit.

The Brazilian delegation will have to balance its representation and support of the LunaCorp claim on the Lunar North Pole with the value of maintaining favorable relations with the international community, especially European nations. While the Brazilian economy has continued to develop, and is rapidly emerging as a leader in technical industries, favorable relations with Germany, France, and the UK are essential to continued economic success. Access to European markets is a key issue, and could potentially be used as leverage against the LunaCorp Claim, although if this was to happen, it would occur outside the general proceedings, in a discrete, private manner.

LunaCorp wields considerable political clout, both in Brazil and in the US, by virtue of its extensive lobbying connections. LunaCorp has also made significant contributions to the campaigns of several key members of the Brazilian parliament's Committee on Scientific Exploration and Space Activities. It has been made clear to the

delegation that failure to sufficiently defend LunaCorp's claims will be the tragic and untimely end of a very promising diplomatic career.

In order to maintain the appearance of propriety, the US will be unable to openly and completely support the LunaCorp claim, indirect US support will be likely, as the US already advocates a "first come, first served" policy in space, with manned presence as the standard for a claim. As such, the US is a tentative, but reliable ally.

As LunaCorp has established a manned presence in the form of an initial landing party, and proposed a resulting mining colony, they have claimed land in both uncontested regions, as well as within the ESA claim. The minimg to be carried out in the crater competing with the ESA base claim is of Platnum for export, as well as Iron, Copper, and Nickel for potential lunar use. Adjacent to the Crater is a region selected by ESA for a proposed solar farm, to partially provide electricity to their base. This region has been claimed by LunaCorp for the mining of H3.

Proposed solutions involving international ownership with access by permit are unacceptable to LunaCorp, as mining activities require definite ownership of land. Such a system also presents the possibility of taxation of lunar activities, which is also unacceptable.

By precedent dating back to the colonial period and before, corporations operating under a nation of charter have successfully established colonies, most notably the British East India Company, as well as the privately owned colony of the Belgian Congo. This precedent and the supremacy of manned claims will form the majority of the Brazilian claims to the moon.

Character Information: Pablo Castillo

An idealist and optimist, you believe strongly in the future of Brazil in space. You view LunaCorp as merely supporting Brazil's current interests, while an independent program is in development. While you are honored that your nation is for the first time involved in the high-level international space policy debate, you will not allow representatives of the traditional space powers to push you around. You are proud of your nation, and its recent accomplishments. Any questioning of Brazil's role in the LunaCorp mission is a direct challenge to Brazilian sovereignty, and as such is personally offensive to you. Under more casual circumstances, you are an agreeable person, but this matter is of the utmost importance. You will seek the support of the Americans, and the Japanese, as their common interests will make them receptive to this.

Character Information: Juanita Del Rio

While you are technically an employee of LunaCorp, you do not care for the way they have treated you, or your nation. Like most foreign interests, they are only using your nation for their own benefit. You are smart enough to know that this can work both ways. You will use the LunaCorp claim to establish a Brazilian claim on the moon, and then fight the LunaCorp portion of the claim in Brazilian courts.

You are willing to deal with any other nation, provided that it advances Brazilian interests. You find the Russians to be a potential ally, as their situation to be quite similar. You have met Yorgi Togantov once, on a flight to Paris. A kind old man, he reminds you of your grandfather. Perhaps he might be able to help.

You find your fellow delegates to be of little use, as Tito is a thoroughly corrupt LunaCorp puppet, and Pablo is to idealistic. This leaves you on your own to ensure the future of Brazil in space. Alliances with non space fairing nations with similar goals may prove useful as well, provided that they are not poisoned by LunaCorp's lies.

You are hesitant to trust the American and European delegations, but will take any support they offer, as long as the price does not compromise Brazil's future, or your own moral beliefs.

Character Information: Tito Guerrez

You are a diplomat from Brazil. You are a realist and an opportunistic individual. You have close ties to Lunacorp and other corporate interests, and have been known to reap the benefits of such corporate ties. While your associate from Brazil believes that they are arguing in your nation's interest, you know that your nation (and your personal interests) will best be served by a beneficial outcome for Lunacorp. Your main goal at this conference is to secure the interests of Lunacorp on the Moon, in the name of the Brazilian government. No means are beyond your moral standards, and you will do what is necessary to get what you want.

Appendix G: British Nation and Character Briefings

British Delegation Briefing

As an ESA contributing member you are obligated to support the ESA territory claim of the lunar North Pole. However, domestic public support for lunar exploration is lacking. As such, the primary interest of the British delegation is simply to ensure a reasonable and moderate outcome of these proceedings. Emphasis in all negotiations will be on ensuring international unity and stability. This will be balanced with the delicate task of not alienating any allies.

There are two distinct issues of interest and importance to British interests. First is the large South Pole territory claim made by the Chinese. Second is the Lunacorp Claim in the northern hemisphere. In both these cases, the concern is that a precedent will be established, allowing not only China but also corporate conglomerates to act with complete disregard of the international community. Leading security and foreign policy analysts have pointed out the potential dangers of allowing either of these parties to act unrestricted.

It is clear that the decisions made in this venue will have implications extending far beyond the Moon, including the upcoming American Mars missions and asteroid mining. While the British have little interest in lunar colonization, there is certainly an incentive to protect future access to space and heavenly bodies.

It is evident that Britain will be caught between her American and European Allies. The United States has already leaked intelligence reports to the indicating the long-term intent of the French to cut the British out of future ESA projects. In light of this intelligence the Americans have offered access to US lunar and planetary space

activities. Feeling slighted as of late in the European Union political arena, the British are somewhat receptive to this offer.

Alliances will be tested and national resolve will be called into question during these proceedings. Ultimately this is a unique opportunity to play a pivotal role in the future of international relations, both on Earth and in space. If American temptation and French provocation can be resisted Britain will be an impartial voice of reason and can facilitate an agreeable outcome. If the resulting discussions result in a stalemate, Britiain could retain the swing vote and sway the balance of power.

Character Information: Rupert Fromer

You are the British diplomat to the United Nations. Though representing a member nation of ESA, your nation has strong ties to the Americans which will be maintained. You are typically British in your approach, taking proper manners, and remaining reserved in action, though on the inside you are not so calm and collected.

One of the things disturbing your inner peace is Lunacorp. Corporations buying nations so their agenda can be pushed with a national legitimacy is a frightening thought and has ramifications far beyond space. If safeguards are not put in place Earth will no longer be run by governments but by corporate conglomerates where their only concern is their profit margin. You wish your American counterparts would join in condemning these actions.

Beyond the precedent set by Lunacorp, your goal at this conference is to prevent the burning of bridges between your fellow European nations or the United States. You support the idea of an open trade moon, and the goal of open access for many nations.

This puts you in opposition of the Chinese claim to the southern hemisphere, but you hope you can mediate a compromise to that China has a sufficiently lucrative operation while still allowing the rest of the world to participate.

Though Britain has not been the primary contributor to ESA, and the British government is not largely committed to manned space, you do recognize the advantage of a free trade Moon. More collaboration between Britain and the United States is tempting, but political ramifications of abandoning ESA could be disastrous unless such a move is perfectly executed.

Character Information: Joseph Smith

You are a distant member of the royal family, and a member of the House of Commons. You fought very strongly for your position in this delegation, and eventually secured a place in the conference through your far reaching political connections. You are well known in both Europe and the US, where your connections also reach. You have long fought for increased British involvement in ESA, as you find space to be an important, though mostly ignored frontier for the British people. You will fight strongly in the conference to secure the rights of the ESA on the moon, and will fight for a stronger British investment into lunar research and development. You know that your position of a strong British lunar program is not widely popular among the British people, but feel that you may be able to gain some support for it through your charisma and reputation.

Regarding your colleague, Arthur, you admire the diplomatic work which he has done, but feel that he goes to great a length to maintain friendly relations at the expense

of advancing British ambitions. You are no amateur at diplomatic relations, and will attempt to avoid alienating allies, but are not afraid to stir up some conflict and debate, and will not back down to pressure from foreign powers. It is your objective to secure a strong future for ESA, and then to strengthen the position of the British nation in ESA back home once the rights of the Europeans in space have been secured. You support the development of nuclear power on the moon, but generally oppose biological testing.

Character Information: Susana York

You are an opponent of increased British involvement on the moon, or in space in general. You believe that in the absence of strong public support, the money could be better spent on much needed terrestrial infrastructure and social welfare programs. While your colleagues may not agree with this position, you will, when the opportunity presents itself, speak for the true interests of your nation. This is not to say that you will alienate ESA member states just that as the majority of the benefit will be theirs, the obligation to defend their claim falls upon their diplomatic teams.

You will adamantly oppose any lunar governance system which requires international funding, as this is another example of unnecessary spending, which will not benefit or even affect the majority of the population. The representatives of developing space programs will no doubt request financial support, which you will oppose.

You are opposed to nuclear and biological experimentation on the moon, as these will no doubt be used as cover for costly and unethical purposes. While you certainly have great respect for the sanctity of human life, you believe that rescue obligations in space are contingent upon repayment of the rescuing nation. Why should so much be

spent to save one person, when many in the world still starve to death, and could be saved for far less?

Appendix H: French Nation and Character Briefings

French Delegation Briefing

The French have played a leading role in the ESA since its establishment, in both financial and technological contributions. The French economy had benefited from the European dominance of the satellite, and the growing man tended orbital platform businesses.

Lunar exploration, and eventual colonization, however, is not an economic matter. It is rather an opportunity to demonstrate European unity, as well as French technological and scientific prowess.

American support of the Lunacorp territory claim is another example of political corruption in the United States, and there is no reason to conceal French disaproval. The use of Brazil Lunacorp's puppet is simply wretched. As such, the Brazilian delegation will be treated with a mixture of pity and contempt.

Deep-seated animosity between the French and American governments has been 30 years in the making, and can be expected to play a considerable role in the French position in these proceedings. Anti-American sentiment, however, does not translate into support for the Chinese claims on the lunar southern hemisphere. This clearly is against French interests and will be opposed.

These proceeding could potentially precipitate distrust between the French and their Russian allies. While long-term Russian involvement in the construction in next-

generation Ariane boosters is clearly not the intention of the French, Russian support is needed until an entirely independent manned program can be developed.

The impartial views of the British delegation require France to take the most aggressive position in the ESA coalition. However, French and ESA allies must not be alienated. This applies particularly to the British, who have been traditionally sympathetic to corporate and American interests. As a result, the French will tactfully avoid discussion of the relatively negligible British contributions to ESA in an attempt to maintain their support.

Information received through the general media suggests that in the upcoming American missions to Mars, a British scientist may be included in the first landing party. While this angers the French as a matter of disloyalty to "European interests", little can be done about it, since the chances of having a French astronaut on an American flight is negligible in this political climate. This adds to their frustration and anger, however, in the international community, they need British support, and as such will most likely attempt to deal with this through more discrete channels, rather than in this public venue.

Character Information: Clare VanDamme

You played a key role of the integration of the Russian program into the ESA lunar exploration program. While it is clear that the majority of ESA will disregard the assurance which you personally made, and abandon the Russians, you are unwilling to do this. You would like to see formalization of Russian involvement, as well as increased support from the rest of Europe. It is only by doing this that European interests can be protected from the American and Asian powers, as well as the corporate interests.

You fear that if swift and decisive action is not taken in this venue, the moon will rapidly be subdivided between these interests, leaving no place for Europe. If this is to be avoided, all Europeans must speak with one voice, and act with strength and conviction. Unfortunately, this has never been the case, but there is always hope.

You look to the British, particularly Joseph Smith as a potential ally, provided they can be separated from their North American allies. As Smith is a known supporter of European space exploration and development, it should not be difficult to gain his support. The Russians are grateful for the contracts which they have been granted (or at least they should be), and as long as they can be convinced that Europe is sincere in its commitment to Russia, their support should be easily secured. The greatest challenge will be overcoming petty differences regarding experimentation in space, and the future of ESA on the moon.

Character Information: Jaques Airre

You are not an unethical person; you merely have a sense of the relative nature of ethics. Right and wrong are matters of opportunity. The knowledge of how to best use the opportunities you have been given is what has gotten you where you are today.

A representative of LunaCorp has recently approached you, indicating that both you and your nation my benefit from a lunar environment in which ESA and LunaCorp can coexist, and share the limited water ice available at the lunar north pole. This type of lease arrangement appeals to you as a sound economic decision. You have been assured that your support on this issue, as well as on nuclear and biological research will be rewarded. As this is in the interest of France anyways, there is no harm in it

To convince your colleagues might pose a bit of a challenge, as they are reluctant to do anything in their own interest. Perhaps there is something which might appeal to each of them, but this remains to be seen.

Character Information: Pierre Jacobs

Originally born in Quebec, you are now a naturalized French citizen. You left Canada after the Quebec Secession movement in which you were deeply involved failed. You are a political activist who became successful as a due to the connections you have made.

While not a diplomat by profession, you accepted the invitation to this conference in order to advance the interests of France in the international community. You envision lunar activity as an opportunity for Europe (France) to demonstrate their technological supremacy. Continued expansion of Arianespace, France and Europe's primary aerospace contractor, is one of your primary interests. You envision an international space effort, on based upon the European model.

You see LunaCorp as another example of American corporate culture attempting to trample the rights of sovereign nations. As an experienced political instigator, you will not hesitate to cause chaos in these proceedings, should the opportunity (or necessity) arise.

Appendix I: German Nation and Character Briefings

German Delegation Briefing

As a leading contributor to the European Space Agency's lunar program, Germany has a definite interest in ensuring that the lunar North Pole territory claim is maintained in these proceedings. ESA design, manufacturing, and logistics contracts are allocated on a national basis dependant upon national contributions to the net ESA budget. As such, the proposed lunar base is of considerable economic and technological benefit to the Germans. The proprietary technology involved in creating a lunar base is especially valuable. This technology would remain in German control should ESA dissolve.

Taking full advantage of ESA's exceptional unmanned space capabilities, Germany has thoroughly explored the area surrounding the lunar North Pole and helped select the location for the proposed ESA lunar base. Thorough, unmanned exploration is grounds for a claim, especially since their information is more detailed and accurate that that obtained by the Americans or Chinese with their manned presence at the Lunar South Pole.

The emphasis on manned exploration as superior and stronger support for the competing Lunacorp territory claim is seen as absurd. Privately, both the Germans and French consider this manned superiority attitude derogatory toward unmanned exploration in the United States. It also appears that Britain has fallen victim to American propaganda efforts downplaying their defeat in the initial manned race to low Earth orbit by the Russians in 1957.

Although generally concealed, there is animosity toward the perceived arrogance of the American backed Lunacorp claim. While most likely not to reveal itself in the form of open hostility toward the American or Brazilian delegations, German objections will remain firm, supported by the lack of recent precedent for corporate claims. Brazil is merely the puppet of Lunacorp, as the majority of the technology and personnel are of American origin. Additionally, rejecting the Lunacorp claim is an opportunity to confront the recent trend toward the subjugation of national and social interests to corporate ones.

The Chinese claim to its lunar South Pole base is of little consequence. Neutrality in these discussions will be the norm, provided that they are not provoked by American arrogance or Chinese overreaction. Depending upon whether the United States supports or opposes the ESA claim, the Germans may provide some support to the US claim in kind.

Depending upon their extent, the Chinese claims for Helium-3 mining rights on the lunar southern hemisphere will need to be evaluated. Concession to full control of water resources is out of the question, as it sets a dangerous precedent.

Character Information: Aaron Haas

You are an established diplomat, and an outspoken opponent of the development and use of nuclear technologies. Though you wish to ensure that the claim made by ESA is sustained, your primary interest is to establish limits (or a ban if possible) on nuclear testing in space. While this issue is of little importance to your colleagues, your position has strong popular support.

You are well known in Europe, but lack the contacts in the US you need to obtain their support. You also know that France, China, and Japan are likely to oppose you. Given the current limitations placed on Iran's nuclear development on the earth, they may be an unlikely ally, as could India. If you can obtain the support of these delegations, it would help your cause greatly.

You are not known for your tact, but in this case, you must refrain from your typical rhetoric. While this might be difficult, you know it is essential to your success. In the event that you fail, however, you will not hesitate to take the issue to a more public venue. You have friends among the protesters waiting outside, which could certainly provide a media event which could benefit your cause.

Character Information: Hans Hammel

You are an aerospace engineer for the DLR, Germany's leading aerospace research center. You are unsure why exactly you have been selected; you are an engineer, not a diplomat. You have considerable loyalty to ESA and its lunar interests as it will provide added funding for your research.

Other than the NASA representative Aurthur Collins, who you know from a recent Symposium on Manned Space Exploration, these people make you uncomfortable. Your fellow German delegate Hermann Gruber has been kind to you, but conversation with him is awkward at best, as his tales of diplomatic triumph are as boring to you as your attempts to explain re-entry aerodynamics to him.

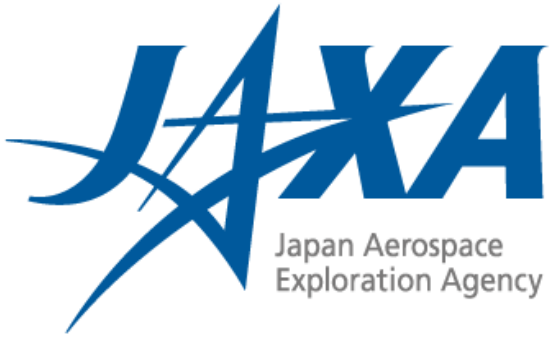
Character Information: Hermann Gruber

A lifetime diplomat on the EU and UN circuit, you are a master of discussion and debate. In spite of this, you remain idealistic about the future of the international community. You view the moon, and space in general as a second chance for cooperation and collaboration between all races and nations. You will use all of you extensive talent to ensure that this happens. You are aware of the potential for dissent and conflict in this conference, but these people are hardly your peers in terms of negotiating talent. They will bend to your will. You view multinational corporations as the enemy of unity, dividing nations and initiating conflicts for their own profits. The exclusion of LunaCorp from the moon will be a great personal victory for you.

You will try to help Hans to negotiate the diplomatic world as much as possible, but are unwilling to let his inexperience compromise the German (or European) position. His discussion of tiresome scientific theories and the like are clearly a self-defense mechanism, intended to show that he is in fact intelligent. This is odd, as no one ever questioned this. Hopefully he will keep his involvement in these preceding to a minimum.

Appendix J: Japanese Nation and Character Briefings

Nation Briefing: Japan



Japan currently shares a base with the United States, on the southern pole of the moon, in close proximity to the growing Chinese community. Resources are scarce, and tensions are high.

Although it was a cooperative effort which brought the Japanese and Americans to the moon together, it is the belief of the Japanese government that the Americans are no longer dealing in good faith. Despite their stated commitment to a long term lunar establishment, they seem rather uninterested in maintaining this commitment.

The Japanese government does not trust the intentions of the Chinese, fears that they have military plans for the moon, and worries that they do not wish to share control of the water ice at the lunar South Pole. It also appears that the United States government has ignored the expressed concerns of the Japanese government regarding the Chinese presence and is focused on Mars. NASA appears to be forgetful of their commitment to a permanent lunar settlement with JAXA. The Japanese government would like to remind the US of promises made in exchange for Japanese resources and technology.

It is the opinion of the Japanese delegation that the Chinese claim of lunar ownership is unfounded and illegitimate. Japan favors a “free trade” moon, and feels that any nation (which can reach the Moon) has rights to the local resources needed for a base. The question is who will have control of large tracts to strip of energy resources on

the surface for export. The real competition for control of the southern half of the Moon will be between between Japan and China, and both nations know this.

There is a long standing and ancient animosity between these nations, both of which understand the significance of symbolic gesture, and of maintaining face and appearance, and the Japanese government is just as concerned with not being embarrassed by the Chinese, or any other nation, as they are with economic return. The Japanese delegation is resentful of the seemingly dishonorable means by which China sought to stake its lunar claim, and by the apparent intentions of the US not to live up to its end of the bargain which allowed them to reach the moon at about the same time as the Chinese, rather than a year later. .

It is the ultimate goal of the Japanese to set up a profitable long term settlement, a true colony, upon the moon, which will require access to both water and oxygen resources. They also plan to gather Helium-3 to fuel the fusion nuclear reactor being designed, based on a promising prototype. Mining rights upon the Moon interest them more for local construction materials than for export, but the home islands are not rich with metal ores or energy fuel sources.

The Japanese have selected the company that will lead the national mobilization to build their own base. The prototype design is clever, arranged to be expandable into a full scale colony, complete with agricultural capabilities. Their vision is of a self sufficient colony which will also be involved in extensive trade relations, a transit point between the Mars and the asteroids and the gargantuan energy appetite of an Earth moving toward a worldwide modern industrialized information age civilization.

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Character Information: Han Naga

You are a student of the diplomatic arts, and are here primarily to learn from your mentor, Hiro Oishi. It was he who secured your presence as the junior member of this delegation. As dictated by culture and tradition, you will defer to the opinions of your colleagues, and provide what support you can to their decisions.

You personally oppose biological research on the moon, as you feel this violates and notion of respect for life. In the open session, you will not voice this opinion; however, you will do your best to privately obtain the support of your delegation.

You fully support the position taken by your superiors regarding the LunaCorp and Chinese claims, as both are in obvious opposition to Japanese national interests. You have learned a lot about the actions of the US as a political entity from Hiro, and as a result have come to expect their betrayal, rather than taking it as a personal offense. It is unfortunate, but it appears to be the nature of their political culture.

Character Information: Hiro Oishi

You are the second diplomatic representative of Japan at this conference, and serve as the Japanese ambassador to the United States. While recognizing the Chinese as the greatest threat to a free Moon, you see the wisdom in attempting to gain the support of the Americans and the Europeans in the development of a free Moon, and see cooperation as the strongest means of solidifying Japans position on the Moon. You believe in subtle negotiations and compromise, and see the value of the finer arts of diplomacy.

Character Information: Suzuki Hanzo

You are the Japanese delegate to the UN. You are a proud man, and feel insulted by the apparent betrayal of the US delegation, and are appalled by the actions of the Chinese, and fear that they have military designs on the Moon. You firmly believe in the capabilities of the Japanese people, and have fought strongly for the proposed development of the permanent self sustained Japanese colony on the Moon. It is the position of your nation that a free trade Moon is the ideal.

Appendix K: Indian Nation and Character Briefings

Indian Delegation Briefing

India's recent manned flights to the aging International Space Station have generated enormous international support. The U.N. General Assembly has, in fact, selected you to represent the non space-faring nations in at these proceedings. Such nations if they have space programs are limited to low Earth orbit and are independently at least several years off from conducting a manned mission to the Moon.

It is feared that these nations will be forever cut out of both the Moon energy trade and possibly all space activities if action is not taken soon to protect their rights. The current space faring nations are moving to quickly subdivide lunar and other space territories into their own private domains. It is the opinion of the India and the other nations they represent that a current lack of technology should not restrict their future rights in outer space.

These nations feel that everyone should be forced to respect the 1967 UN doctrine, which declares that no celestial body can be owned by a nation or company. If these territories must be owned, they should be owned by the UN for the collective human race.

It is possible to attempt to enforce this position through the mass of votes of nations with little to no space infrastructure. If a vote makes it way to the UN General Assembly the future rights of access to the Moon and its resources would be governed by international law and the UN.

Character Information: Araj Kalpajakian

As an established member of the diplomatic community, you have seen a great deal of change in your life. You helped to end the conflict with Pakistan, perhaps your finest moment. While space really interests you very little, you feel obligated to attend these proceedings, to ensure that your nation is properly and adequately represented. This may prove difficult, given your colleagues lack of experience. You will use your connections with the US and Japan as much as possible, but perhaps they may not be willing to provide much help in this case, as your interests may not coincide.

You are unwilling to expend much of your international political capital on this enterprise, as it should be reserved for more important issues. You do, however, recognize the importance of securing future rights to the moon. This will ensure the place of India in the emerging new economic and political global power structure.

You recognize the power granted to you by the majority support of the General Assembly, and will push this advantage given the opportunity or need. Characteristically tactful, you can easily use this power, without alienating your international contacts.

You will certainly be watching out for the LunaCorp representatives, as they make a mockery of the international community by their very presence. You will do what you can to prevent the establishment of a precedent for blatant corporate involvement in UN affairs.

Character Information: Raji Viwanathan

You began your career in the Indian space program as the manager in charge of several unmanned lunar landing missions. The technical challenges were difficult, and

the missions had varying degrees of success, with incremental improvements. The last two landers were completely successful and not only yielded great scientific data on Helium-3 concentrations but also served as a test bed for new communication technologies.

With the successful lander missions you moved operate India's pride and joy - a laser-based lunar orbiting communications network that allows for high bandwidth data transmissions from anywhere on the moon. Using a laser based platform also maintains a pristine radio environment for radio astronomy. The lunar landers of your previous assignments prototyped the ground laser communications package which is now standard issue for all lunar missions, regardless of nationality.

Alas, with your manned program in its infancy, a manned mission to the Moon is still beyond your nation's capacity. It is your goal to a partnership with advantaged nations for your manned program.

You must protect India's rights on the Moon and in space, since if your lack of manned lunar capability now could potentially leave India completely out of lunar operations if China and Lunacorp have their way. You are generally agreeable, but will fight strongly for your position, and have been instructed by your government to use any reasonable means towards a guarantee of your nation's rights in space.

Character Information: Ranjari Jamalan

You are an advocate of the continued economic development of India. Your primary interest in the Indian Space program is its potential to attract high-tech industry to the nation. This has been the key to recent economic success, and it will continue to be

vital to India's national interest. This is a great PR opportunity for India to showcase its technological capabilities to the world, and you will not hesitate to use it as such.

While India has primarily been included as a representative of the Non-space fairing nations in the UN General Assembly, you wish to dispel this perception, as it is entirely inaccurate. India is emerging as a power in the space telecom industry. The development of full manned capabilities is on the horizon. This is a great opportunity to secure foreign investment in the program, while also ensuring a stake in lunar development.

You will not hesitate to deal with representatives of other nations on a monetary basis if needed; as everyone knows this is how things really get done. You are wary of LunaCorp, as their involvement in the in Brazilian space program seems less than legitimate.

Appendix L: Russian Nation and Character Briefings

Russian Delegation Briefing

Recent economic and political instability has dramatically weakened Russia, once a dominant force in space exploration. For this reason, beginning in 2010, Russian activities in space have been primarily collaborative efforts with ESA (the European Space Agency). This alliance began with a joint venture of man-tended platforms in low earth orbit. These largely replaced single-instrument GPS, communications, weather, and earth-sensing satellites. This alliance allowed the Russians to maintain a visible presence in space, and to make a considerable profit as well.

While financially the Russians contributed little to the effort, their knowledge of manned space activities is second to none. The routine long duration missions of cosmonauts on the MIR and ISS space stations provided the best and most detailed account of the physiological and psychological effects of long term space travel available. This information proved invaluable to ESA, which just recently entered the manned space arena. In addition, the current generation of ESA rockets to carry Hermes, a European 2 man variant of the Russian Soyuz spacecraft, is based on the design of the Russian Soyuz booster.

Currently, much needed economic aid and foreign exchange is flowing into Russia from several ESA member nations. European aerospace manufacturers are making excellent use of the space expertise and technology flowing of Russia. Arianespace launch capabilities are predicted to match the capabilities of Energia, the Russian space giant.

Russia is on borrowed time and will soon have to compete with its current ally in the commercial space market. Efforts are being made to slow the flow of technology out of the Motherland, much to the disappointment of the Europeans. Cutting into ESA's 60% share of the commercial launch market or seizing a new market is essential for the survival of the Russian space program.

India's emerging manned space program appears to be a promising venture. Their recent flights to the aging International Space Station have generated enormous international support, and the Indians have made it very clear that they are looking for partners for future lunar ventures. The situation is unique since India is not looking to copy Russian technology and expand their internal capabilities; they would like to focus on what they are good at and merge with another nation to fill in the gaps. A symbiotic relationship seems likely, although its doubtful that Indian partnership alone would be enough to sustain the Russian space program.

A new market to dominate is the lunar trade as the American and Chinese operations on the Moon need an enormous amount of supplies from Earth before they can become self sufficient. Luckily the lunar operations have something to offer in return, including Helium-3, mined metals, designs for fission and fusion based nuclear reactors.

Russia must either get into this lunar transportation business or slug it out with ESA for the man tended platform and satellite repair market. The projected value of the commercial space contracts will only grow, so potentially ESA could keep its existing launch rate and allow most of the growth to go to Russia. Then the market shares would be ESA 45%, Russia 25% and 30% for everyone else to share.

On problem with this scenario is that the Chinese have essentially copied Russian Technology and improved upon it, so as they gain experience, reputation and reliability it will be hard to hold them to their current 10% of the world market while Russia holds 25% with the same technology and cost structure.

Further, the lunar transportation market are going to be primarily to supply Chinese and Japanese facilities and they may insist on having this trade carried out in their own space craft or those they have leased. Training personnel and building trade vessels for sale or lease to the competing powers may be the only way to get in on this market.

ESA's possible dependence on Russia for their lunar transportation needs will likely result in Russian support for the ESA claim on the lunar North Pole. However, ESA does not want this dependence and will try to develop their own infrastructure, with finances possibly from Middle Eastern Oil interests looking for new investments. Russian willingness to defend ESA's claim is also dependant upon US evolvement in the dispute, as US financial aid is of considerable value to Russia. Moscow has been assured by the US that NASA's intentions on the Moon are limited to a modest presence at the South Pole in preparation for a future Mars mission.

The problem is the US Aerospace industry, which wants to compete with Europe and Russia for the northern claim. In Moscow and nearby Star City there is speculation that maybe the American industrialists would be better partners than the Europeans, so long as it is cheaper to do things in Russia than in the USA. ESA's policies will always limit the amount of space industry that can come to Russia to that which the Europeans

can't do for themselves. The Americans are much more comfortable with outsourcing and exporting jobs as long as it is profitable.

The Russian position is somewhat contradictory, while they defend the ESA claim; they advocate a policy requiring a manned presence to substantiate a lunar claim. This arises from their role in the Russo-European space alliance. Requiring manned presence for a claim ensures that Russian knowledge will continue to be of value to any nation with lunar intentions, and give them an edge in the event that their tentative alliance with ESA unravels.

In the South Pole claim dispute, historical geopolitical alliances suggest that the Russians will side with the Chinese. Economic considerations could influence this greatly, however, as although the Chinese economy continues to grow and develop, they have done little to contract Russian expertise. Chinese abuse of Russian intellectual property has also been an issue, as technology bought by China from the Russians usually ends up incorporated in a "new" Chinese design. This makes them unreliable and unsuitable customers.

The Russian people still dream of a return of the former independent glory of their space program. Recognizing this, the Russians will be unwilling to compromise their interests in favor of those of their European allies. Under the right conditions, an alliance with the US or even Japan is not out of the question, if it provided for the possibility of the return of an independent pioneering and enterprising Russian space program- or their own Lunar base.

Character Information: Alexander Kobalov

As a member of the emerging moderate party which came to power by opposing the oppressive rule of Putin, your presence on this vital diplomatic mission illustrates the shift in power that has occurred. You are an idealist, envisioning a promising future for the new Russia, in spite of the current economic slump.

Your family was oppressed by the old power structure, and you resent all that represents it, including Yorgi Togantov, that senile old fool who accompanies your delegation. His selection as lead diplomat is merely a formality as you are certain that Peter will side with you. Peter is certainly not an honest man, but at least a predictable one.

Personally, you find space exploration to be a matter of little importance, the larger issue here is the balance of political power. By demonstrating influence in diplomatic actions, your party will become more powerful, and thus better able to serve the real needs of the Russian people.

The technological advances that could be obtained from lunar nuclear and biological research could benefit the people you serve. This portion of the discussion is of considerable interest to you. Your colleagues will most likely agree, certainly Peter, as his greed is easily manipulated.

You recognize that much needed economic aid is also potentially at stake in these proceedings. This aid can greatly improve the quality of life for the agricultural region where you grew up. Such considerations will certainly influence your vote.

LunaCorp has approached you, claiming an interest in improving life in Russia, but you are uncertain of their true intentions. You will not be fooled so easily.

Character Information: Peter Zubov

You are a young, enthusiastic diplomat. You have been interested in space exploration since childhood, but find money of even greater interest. While you will not participate in any corruption, you find that often your own personal financial interests and national interests coincide. When this happens, there is nothing wrong with accepting a well deserved reward.

Educated in the US, you view all matters and essentially economic. What is good for the economy is good for the nation. Naturally, everything is available for sale or trade, given the right conditions. You will not hesitate to strike a deal if it will benefit Russia, or developing Russian aerospace corporations.

You consider Nationalism an outdated, idealist relic, with no place in international policy. The same can be said for Yorgi, while his intentions are clearly good, the old fool just does not understand the way things work. You will have to circumvent him to get anything done. Although he has been selected as the head diplomat, you know that it is you who will actually lead the delegation, through your bold actions.

You know little of Alexander Kobalov, except that his resentment of the old Russian establishment may prove useful in securing a vote for the deals you arrange, as he will blindly oppose anything Yorgi supports. He is another idealist, but at least a useful one.

You have personally spoken with the CFO of LunaCorp, and find them quite willing to negotiate a mutually agreeable arrangement. They have assured you that their

interests are “well represented” in the Brazilian delegation. This appears to be an oportunity for one of those well deserved rewards for your services to your nation.

Character Information: Yorgi Togantov

You are the Russian representative to the UN. Your world view is colored by your memories as a child of the benefits of loyal family service to The Party, and the eventual downfall and disgrace of your family as the Party fell and democracy took hold. You are resentful towards the current conditions of the Russian nation, and have dreams of a Russian return to greatness, though you fear you will not see it in your lifetime. It pains you that the Russian space program, once a matter of much national pride, is now financially at the mercy of other nations, and this resentment clearly shows in your dealings with other delegates.

Although you have been instructed to find allies among the Europeans or Americans, whoever proves more willing, you feel that the Russian legacy of manned space should not be disgraced by its sale to the highest bidder, and this makes you quite confrontational despite your hesitation to disobey national orders.

You do not trust the Chinese, as they have stolen Russian technology in the past, and are likely to continue to do so if they are allowed to. You also feel that the success of the Chinese has come at the expense of your beloved mother Russia.

Your feel that your younger colleagues, despite their good intentions, will through lack of experience be manipulated by representatives of other nations. For this reason, you place little faith in their actions, and will be watching them carefully.

Appendix M: Iranian Nation and Character Briefings

Iranian Delegation Briefing

Iran has a limited space program. It is capable of launching satellites, but its development has been impeded by international fears of plans to use the space program to mask a weapons development program. Israel specifically fears the modest modifications needed to convert a space launch system into a missile delivery system. Such a capability constitutes a direct threat to its existence.

Relations between the Persians and the Jews have been warm in the Biblical past and can be again as soon as there is peace between the Jews and the Palestinian exiles. Israel's "slow" invasion of the Gaza strip by Israel in 2010 allowed all Palestinians to escape to Egypt where the Egyptian military immediately rounded them up and deported them to various lands that would accept them.

Ending the relocation of the Palestinians is a cause that Iran, Saudi Arabia, and Syria support. Of the three nations, only Iran is capable of closing the technology gap to threaten Israel militarily to restore the rightful land of Palestine.

Getting international approval for just a space program has been next to impossible; fighting for rights for lunar operations will be even more difficult. With this in mind, Iran's chief civilian space expert is the best person to send to the United Nations. He is a strong supporter of space exploration and has contacts with both European and American space agencies. International cooperation is paramount to have a sustainable space program.

While Iran builds a legitimate civilian space program with the rest of the world, it wouldn't take much to build a truly devastating weapon to destroy the Zionist infidels.

Character Information: Ashid Abas

As the director of the Iranian unmanned space program, you report directly to Mohammad, and share his hope for continued development of the program. Presumably, you were selected for this diplomatic mission for your extensive knowledge of the accomplishments of the Iranian space program. Your main role will be to illustrate the successes of the program, including the launch of commercial communications satellites. You assume that it will be your place to refute any argument that in the past Iran had little interest in space, by pointing out the long history of Iran in space. (18 years is, after all, a long time)

You are aware that the military wishes to obtain technological advances from your work. In your view, the majority of the applications, particularly surveillance satellites, will only promote peace and stability in the Middle East, by keeping the covert actions of the Israelis at bay. You believe that international support of the program will be a strong deterrent to the application of the rocket design advances to weapons delivery systems. Even if it does not, your nation should be entitled to the same defense as the oppressors of the west.

You view the discussion of nuclear testing on the lunar surface as entirely hypocritical. The same nations which have prevented Iran from developing a nuclear power program, which would benefit the population greatly, now seek to further their advantage through lunar testing, while continuing to suppress Iranian development. This is clearly another effort by the west to subjugate your great nation.

Character Information: Isan Otta

You have been selected from the ranks of military intelligence to monitor and control the activities of the Iranian space program. It was you who selected Mohammad for this diplomatic mission, as the perfect representative of the "good intentions" of the Iranian space program. His idealism and trust make him ideal for this, so easily manipulated. Manipulation of people, that is what you do, and you are very good at what you do. It is a shame that in this case, all you can do in the actual proceedings is watch, and trust that Mohammad will do as he has been told.

While typically you can control a situation without the need for intimidation, it always remains an option. In order to maintain your cover as an assistant to Mohammad, you must use discretion in all public venues. Any actions (or even the discovery of your identity) could greatly reduce access to the vital defense technology which is being developed in the space program.

Mohammad is entirely unaware of who you are, and blissfully ignorant of the military implications of his work. It would be best if this could remain the case. This is what you have prepared for all your life, you will not fail, and you cannot fail. Intimidation, it would seem, can work against you as well.

Character Information: Mohammed Al Satyr

Born in Saudi Arabia, you came to Iran to assist with the development of the Iranian manned space program. You have always dreamed of traveling to the Moon, but due to severe damage to your inner ear as a child, you are unable to meet the physical requirements for space flight.

You have dedicated yourself to the development of Iran's future lunar mission. You are grateful for the funding and support you have received from the Iranian government. While you recognize that many in the international space community believe that the technology you are developing is primarily intended as a weapons delivery system, you are certain that the Iranian intentions for a world-class space program are genuine.

Your involvement with the Iranian military has been extremely limited; however they have supplied you with the personnel and equipment you need in your operations. You have been in contact with ESA and NASA concerning technological support for the Iranian program, but have met with little success. It is your opinion that through active involvement in Iranian development, the miss-appropriation of technology could easily be monitored and prevented, while allowing for continued development of the space program. The terrestrial implications of technologies developed for the space program could also greatly improve life for the Iranian people.

Appendix N: Moderator Notes

The convening body for this is UNOOSA, the United Nations on Outer Space Affairs. The moderator reports directly to the Secretary General, and as such should be impartial in these proceedings. The primary objective is to provide the opening address and maintain order in the simulation. Intervention is necessary when the discussion gets off topic, or excessively bogged down in irrelevant or inconsequential details. Refer to the topic guide as needed.

It is the responsibility of the moderator to ensure that all nation parties are given an opportunity to speak. This is essential, as if representatives sense bias in this, they may not benefit from the game experience. It is natural that some will speak more than others, so be aware of this.

As the UN representative, you speak for the UN when necessary. This should be limited to vote requests and petitions, for the most part. Again, it may be necessary to intervene to keep the game progressing, try to do so in role as the UN representative.

While the UN representative cannot condone any extralegal dealings, you should be aware that many of the character subplots lead to this. Any indiscrete dealings should be discouraged from the session, as the place for such dealings is outside the formal debate. It may be wise to review the character materials to determine where this will occur.

Appendix O: Sample Participant Survey

Model UN Lunar Policy Simulation Outcome Survey

The purpose of this survey is to assess the effectiveness of this simulation in improving public awareness of the importance of the new race to the moon. While all questions are optional, you are encouraged to answer as many as possible. The answer format is 1-5, with 1 indicating the least awareness, interest, or relevance, and 5 indicating the most.

1) Prior to participating in the simulation, how would you rank your awareness of the potential political, social, and economic impacts of a return to the moon?

1 2 3 4 5

2) Rank your personal interest in space exploration in general.

1 2 3 4 5

3) Prior to this simulation, to what degree did you consider lunar policy to be a relevant and important social issue?

1 2 3 4 5

4) To what extent did you find your experiences in the game informative, with respect to the topics relevant to lunar policy?

1 2 3 4 5

5) Having participated in the simulation, how would you now rank your awareness of the importance of lunar exploration and policy?

1 2 3 4 5

6) As a result of participation in the simulation, would you be likely to seek additional information on space policy issues?

Yes No

7) Did you find the game to be enjoyable or educational enough to recommend it as an activity for another class or conference?

Yes No

8) If you have any additional comments, questions, or concerns, please use the space below and on the reverse side if needed to express them. Thank you for your time and participation.