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## Chapter 4: Removal of Ambiguities

The discussion in this chapter centers on spacebased weapons — orbiting satellites that might be used in either space-to-space or space-to-ground direct weapons operations. Suborbital objects (such as ICBMs and air-launched ASats) are excluded. Moreover, the space operations discussed are those foreseeable in the immediate future (less than 10 years). More exotic operations in the farther future (e.g., lunar-based operations) are not considered.

### 4.1 Ambiguity Identification

The basis of ambiguity in spacecraft operations is the question of intent and purpose, given known information. In the absence of any space-use treaty or agreement and its verification mechanisms, the true intent of space operations by one nation is completely privy to that nation. In an environment of military competition — the race to control the “high ground” — a guess at the intent will tend conservatively toward a worst case scenario. If a space-use treaty is in effect and the purported intent disclosed but unverified, then the question of honesty arises, potentially creating suspicion.

Conventional monitoring of space operations is often not adequate to fully resolve key details, and hence the purpose, of the satellite involved. A set of detectable ambiguous operations is shown in Table 5. For each, there are both peaceful and weapon interpretations. For example, the first item in the list, “pursuit of, and/or rendezvous with, satellites,” could be associated with peaceful operations like intersatellite resupply or personnel transfer, manned satellite maintenance, or telerobotic satellite maintenance. On the other hand, it could equally be associated with weapon testing or operations like target acquisition within weapon range.

- Pursuit of, and/or rendezvous with, satellites
- Deployment of large space structures
- Satellite breakup or fragmentation
- Radioactive debris or emissions
- Excessive orbital maneuvering of unmanned satellite
- High-power RF transmissions
- Flyby interception of satellite
- Blasts (especially nuclear)
- Constellation deployment
- Particle beam emissions
- Satellite without a cause
- Laser emissions

**Table 5**

**Detectable,  
Ambiguous  
Space  
Operations**