Directorate of
Intelligence

~~Top Secret~~ (b)(3)

South Africa: Armaments Industry (b)(3)

A Research Paper

~~Top Secret~~

ALA 83-10160C

November 1983

Copy 299

(b)(3)

Warning Notice	Intelligence Sources or Methods Involved (WNINTEL)
National Security Information	Unauthorized Disclosure Subject to Criminal Sanctions

Dissemination Control Abbreviations		
	NOFORN (NF)	Not releasable to foreign nationals
	NOCONTRACT (NC)	Not releasable to contractors or contractor/consultants
	PROPIN (PR)	Caution—proprietary information involved
	ORCON (OC)	Dissemination and extraction of information controlled by originator
	REL...	This information has been authorized for release to...
	FGI	Foreign government information
	WN	WNINTEL—Intelligence sources or methods involved

(b)(3)

South Africa:
Armaments Industry [redacted] (b)(3)

A Research Paper

This paper was prepared by [redacted] (b)(3)
[redacted] the Office of African and Latin American Analysis,
with contributions from [redacted] (b)(3)
[redacted] It was coordinated
with the Directorate of Operations. Comments and
queries are welcome and may be directed to the
Chief, Africa Division, ALA [redacted] (b)(3)

(b)(3) [redacted]

South Africa: Armaments Industry [redacted] (b)(3)

Key Judgments

Information available as of 15 September 1983 was used in this report.

Prompted by the perception of a growing military threat and international isolation, South Africa over the past 20 years has given ever higher priority to meeting the equipment needs of its armed forces. It has developed the largest arms industry in Africa, and the government-controlled Armaments Corporation of South Africa (Armscor) has become one of the country's largest industrial conglomerates, with assets estimated at $1.2 billion. [redacted] (b)(3)

Although Pretoria's goal is to achieve self-sufficiency in arms production, Armscor acquires some military equipment and considerable expertise from abroad. Armscor's reliance on foreign acquisitions is most pronounced in fields that involve high technology. To evade the UN arms embargo, the South Africans make use of false end-user certificates and employ middlemen or front companies to make military purchases abroad. [redacted] (b)(3)

Armscor currently meets the bulk of the military's requirements for ground force equipment out of domestic production. The domestic arms industry produces such materiel as artillery and rockets, armored vehicles, tactical communications equipment, mines, and small arms and ammunition. [redacted] (b)(3)

The production of air and naval equipment remains a problem area for Armscor, however. Although Armscor recently announced plans to begin production of helicopters, Pretoria still faces problems in replacing its aging fleet of fighters, bombers, and reconnaissance aircraft. While South Africa is producing missile-equipped patrol boats, it does not yet have the capacity to achieve its stated goal of producing submarines and corvettes. [redacted] (b)(3)

In addition, South Africa's production of some ground weapons systems and higher technology items is inadequate to quickly replenish or build up inventories. While South Africa has not encountered many problems in supplying equipment for the counterinsurgency in Namibia, we believe that it would be unable to fight a protracted conventional war with the current level of arms production. This same weakness, in our view, would also prevent Pretoria from becoming a reliable arms supplier. [redacted] (b)(3)

Armscor's approach to arms production has essentially been one of modifying available foreign technology to fit South Africa's needs. Only in a few instances has Armscor developed entirely new systems. Moreover, at each stage of development, Armscor has depended on foreign technicians and engineers, equipment, or technology to achieve its goals. [redacted] (b)(3)

(b)(3) [redacted]

(b)(3)

Barring a major change in the regional military equation or in South Africa's internal security situation, we believe that Armscor will continue to meet most of the needs of South Africa's armed forces through its two-pronged strategy of foreign acquisitions and domestic production. Although technology requirements will increase steadily, the flexibility the industry has shown in developing and adapting weapons probably will continue to work to South Africa's favor. We believe that, as in the past when foreign technology, personnel, or materiel were needed, South Africa will continue to acquire these assets despite its pariah status and international embargoes. A major escalation of hostilities between South Africa and its Communist-backed neighbors, the breakdown of internal security, or a combination of external and internal security threats could, however, result in armaments requirements significantly in excess of Armscor's capabilities. (b)(3)

Thus far, South Africa's ability to produce arms has allowed it to pursue aggressive military policies without being pinched by dependency on foreign suppliers of weapons. Expected improvements in weapons production will help to reinforce South Africa's sense of its ability to control the southern African region. We expect this will make Pretoria more resistant to US and Western pressures to modify both its domestic and regional policies. (b)(3)

A serious dilemma for the United States could result from major hostilities between South Africa and its Communist-backed neighbors any time over the next few years, particularly in the event of increased Cuban and Soviet involvement. In such circumstances, Pretoria would seek to increase its covert purchases of Western military materiel and might also request direct US and Western military aid. (b)(3)

(b)(3)

Contents

(b)(1)

(b)(3)

(b)(3)

(b)(3)

UN Arms Embargo Resolutions Against South Africa

1963 *Security Council urges all nations to stop the sale of arms, ammunition, military vehicles, and equipment to manufacture armaments to South Africa.*

(b)(3)

1970 *General Assembly and Security Council pass resolutions strengthening the voluntary arms embargo by expanding the definition of prohibited items to include spare parts, licensing agreements, and training of SADF personnel.*

(b)(3)

1977 *Security Council adopts Resolution 418, making the heretofore voluntary arms embargo against South Africa mandatory.*

(b)(3)

UN resolutions calling for the embargo of arms sales to South Africa have not had the intended effect of totally stopping the arms flow to South Africa. It was generally agreed at the time that the 1977 resolution calling for a mandatory embargo came too late to have an impact on South Africa's ground forces and internal security units. It was believed, however, that the embargo could negatively affect South Africa's arms production capabilities in high technology areas, such as aircraft, where the country was highly dependent on foreign assistance and supplies.

(b)(1)

(b)(3)

(b)(1)
(b)(3)

(b)(3)

South Africa: Armaments Industry

Introduction

In the 1960s, as a result of South Africa's growing international isolation and the 1963 UN voluntary arms embargo, South Africa made a commitment to become self-sufficient in the production of armaments. The stated goal of the country's budding armaments industry then was the manufacture of weapons needed for internal security. The urgency for domestic arms production was renewed in the 1970s after the United Nations imposed a mandatory arms embargo, and developments in southern Africa changed Pretoria's perception of the regional threat. With the demise of the Portuguese empire and the emergent crisis in Rhodesia, South Africa was confronted with the replacement of friendly, white-controlled governments in neighboring states by leftist black regimes and a dramatic rise in Communist presence in the region. During the decade of the 1970s, the task of the arms industry expanded to the production of weapons needed for defense against external threats. In recent years the sophistication of the industry has increased, with emphasis on the development of electronics and advanced weapons systems.

(b)(3)

This paper reviews the development and production capabilities of the South African armaments industry and assesses Pretoria's claim that the goal of self-sufficiency has largely been met.

(b)(1)
(b)(3)

Structure and Functions of the Armaments Industry

Organization

Aside from a brief effort during World War II, South Africa did not establish an arms production industry until after the Afrikaner National Party came into power in 1948. In 1951 the government organized the Defense Production Office, which a year later opened a small arms and ammunition plant. By the early 1960s the name of the organization was changed to the Armaments Board and its responsibilities expanded to include the acquisition of foreign equipment and licenses to produce rifles and armored vehicles. It also set up plants for the production of military high explosives and propellants.

(b)(3)

In 1968 the armaments industry was reorganized. Legislation of that year created the Armaments Development and Production Corporation of South Africa, Ltd. (Armscor). The government provided Armscor with initial capital of R100 million ($140 million) and gave it control over existing armaments plants.[1] The Armaments Board retained responsibility for purchasing—either abroad or from private South African firms—equipment that could not be produced by Armscor.

(b)(3)

The present organization of the armaments industry dates to 1977, when the Armaments Board and Armscor were merged to become the Armaments Corporation of South Africa, Ltd., known—like its predecessor—as Armscor The new Armscor was given responsibility for research, development, production, and testing of armaments required by the South African Defense Force (SADF) and the police. It was also tasked with purchasing abroad or manufacturing by itself equipment which, because of economic, technical, or security considerations, could not be produced by the private sector in South Africa. In line with this charter, Armscor's policies are set and executed by a Board of Directors whose members are drawn from the military (the Chief of the SADF), the government (the Director General of Finance), private industry, academia, and Armscor's senior managers.

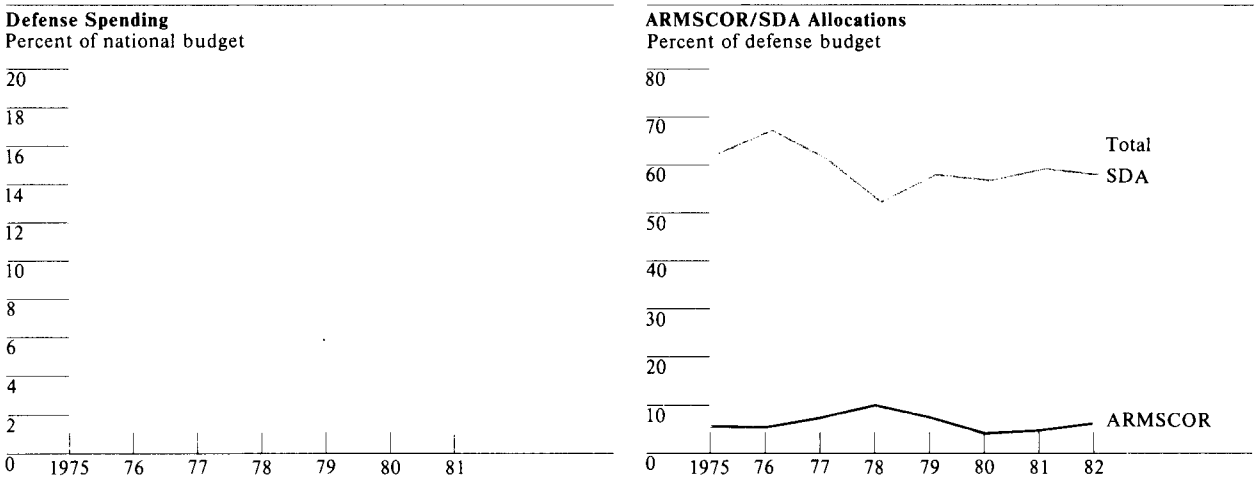
(b)(1)
(b)(3)

[1] All currency conversions in this paper are at the then prevailing exchange rates between the South African rand and the US dollar unless otherwise indicated. (The current rate is R1.00 = $.90.)

(b)(3)

(b)(3)

Figure 1
South African Spending for Defense and Arms Procurement



(b)(3)

300906 (A03576) 10-83

Funding

From its modest beginnings, Armscor has become one of the largest industrial conglomerates in South Africa, with assets estimated at R1.3 billion ($1.2 billion), according to the 1982 defense white paper.

(b)(3)

Armscor is funded directly through the defense budget, which has accounted for 10 to 20 percent of total national expenditures since 1975, when measured in constant 1975 US dollars (see table 2). Within the defense budget, allocations for the production and procurement of armaments are carried under "Armscor" and a "Special Defense Account (SDA)." Using South African budget documents, we estimate that all the funds for procurement come from the SDA and those for operations and maintenance from the Armscor account. Together, SDA and Armscor allocations have made up between 60 and 70 percent of the defense budget since 1975 (see figure 1). In recent years Armscor also has borrowed small amounts of funds in the domestic capital market.

(b)(1)

(b)(1)
(b)(3)

We estimate that since 1975 allocations for Armscor and the SDA have grown at an average real rate of about 2 percent annually, although growth rates have fluctuated widely from year to year. These fluctuations have been due in part to cancellations of foreign contracts because of the 1977 mandatory UN embargo, a slowdown in the establishment of new subsidiaries, and changes in domestic production schedules.

(b)(3)

(b)(3)

Table 2
Armscor Budget 1975-82 [a]

Million 1975 US $

	1975	1976	1977	1978	1979	1980	1981	1982
Armscor								
Current expenditure [b]	41	56	53	28	33	32	35	44
Transfer payments [b]	32	32	79	122	85	29	50	51
Capital expenditure [b]	NA	NA	NA	NA	NA	NA	NA	NA
Subtotal	73	88	132	150	118	61	86	95
SDA [c]	817	1,089	1,097	776	909	851	1,099	896
Total, Armscor/SDA	**890**	**1,177**	**1,229**	**926**	**1,027**	**912**	**1,185**	**991**
Total defense budget	**1,329**	**1,639**	**1,813**	**1,510**	**1,590**	**1,520**	**1,878**	**1,567**
Total budget	**9,543**	**9,913**	**9,923**	**10,008**	**9,982**	**10,234**	**10,978**	NA

[a] The source of the budget figures is the yearly "Estimate of the Expenditure To Be Defrayed From the Revenue Account" as presented to Parliament. The revenue account is financed by taxes and includes all the main current expenditures for government operations.

[b] As defined in official South African budget documents, *current expenditure* is the recurrent expenditure of departments on goods and services not intended for the establishment or acquisition of capital assets—that is, operating costs, including research. *Transfer payments* refers to amounts which will not be spent on goods and services by the department on whose budget they appear, but will be paid to other bodies or persons—that is, grants, financial assistance, loans, and pensions. *Capital expenditure* includes expenditures on goods and services that lead to capital formation or the establishment or acquisition of fixed capital assets such as land, buildings, and machinery.

[c] According to official documents, in 1975 all the funds for procurement were transferred from the Armscor account to the Special Defense Account (SDA). SDA is described as a holding account where unspent funds—due to discrepancies between lead-times and yearly appropriations—are retained and carried over to the following fiscal year. According to open sources, however, SDA allocations finance "special operations" as determined by the Minister of Defense. The funds have to be approved by the Minister of Finance, but the Minister of Defense determines how to allocate them without being accountable to anyone outside the Ministry.

(b)(3)

Personnel

According to the South African press, in 1982 nearly 105,000 people were employed in weapons production, of whom 80,000 worked for some 700 private firms as Armscor's contractors. Armscor itself has boasted of doubling its own personnel from 12,000 to 24,000 in the last 10 years. The total number of workers in arms production constitutes 7 percent of the labor force of 1.5 million employed in the manufacturing sector.

(b)(3)

The composition of the work force has also changed over time. Initially, lacking qualified personnel, Armscor had to rely on foreign technicians and engineers.

(b)(1)

Armscor continues to make efforts to reduce this dependence; in 1981 it had about 6,000 trainees and apprentices, according to South African press reports.

(b)(3)

Gunrunning to South Africa

Despite official denials, South Africa continues to obtain foreign arms, even from Communist countries. A few examples demonstrate how South African ingenuity and international connections have foiled the UN arms embargo.

(b)(3)

West European press reports during the first half of 1983 detailed the case of a Danish shipping firm that arranged 19 illegal shipments of arms from several West and East European ports to South Africa between 1978 and 1980. South African nationals based in Liberia and the South African Embassy in Paris dealt with the Danes in arranging the transportation, using false end-user certificates. Armscor used an international "businessman" and a front company with a London address to handle a part of the transaction that involved the acquisition of Bulgarian arms for Jonas Savimbi's guerrillas in Angola. Armscor officials denied knowledge of the operation, but the Danes involved were convicted of arms smuggling by the Danish Government.

(b)(3)

[redacted]

(b)(1)
(b)(3)

In early 1983, Danish press accounts described an attempt to send an undetermined number of pistols to South Africa aboard civilian aircraft. The shipment, which allegedly originated in Austria and was clearly marked "pistols," was intercepted at the airport in Copenhagen. Both sender and receiver denied any knowledge of the weapons, insisting they were trading rotor blades for a furniture machine. Two earlier incidents of gunrunning this year through Copenhagen were traced to a sender in Italy.

(b)(3)

Requirements and R&D

The SADF and Armscor work closely in establishing requirements for weapons and their production. The SADF draws up the requirements and Armscor writes the technical specifications. The government's Defense Planning Committee then reconciles weapons requirements with military policy and technical and financial capability. According to the US defense attache, the Planning Committee includes the Chief of Staff and several ranking officers of the SADF and Armscor's two top managers. Armscor relies principally on organizations such as the Council for Scientific and Industrial Research (CSIR)[2] and South African universities for assistance on research and development on weapons and components.

(b)(3)

[2] The US Embassy in Pretoria describes the CSIR as a statutory body controlled by the government. It performs civilian scientific, industrial, and engineering research as well as covert, defense-related research and development.

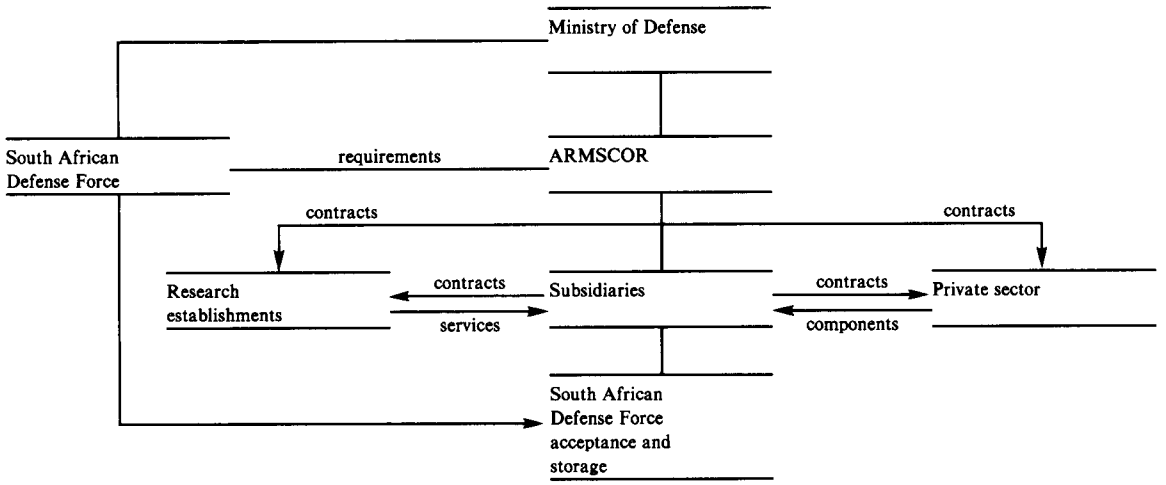
Procurement

[redacted]

(b)(1)
(b)(3)

(b)(1)
(b)(3)

Figure 2
South Africa's Procurement System



(b)(3)

300905 10-83

Table 3
Armscor Subsidiaries

Name	Product
Atlas Aircraft Corporation	Aircraft production and maintenance
Eloptro	Electro-optical devices, night vision equipment
Kentron	Missiles, rockets, and guided weapons
Lyttleton Engineering Works (LEW)	Small arms and artillery
Musgrave Manufacturers and Distributors	Small arms and ammunition
Naschem	Mines, bombs, and large caliber ammunition
Pretoria Metal Pressings, Ltd., (PMP)	Small arms ammunition
Somchem	Rockets, propellants, and explosives
Swartklip	Grenades and pyrotechnics munitions
Telcast	High-technology castings for Atlas Aircraft Corporation
Service subsidiaries	
Nimrod Promotions	Export
Bonaero Park	Housing
Infoplan	Computer support
Krygmed	Medical services
Kryspen	Pension plan

(b)(3)

(b)(1)
(b)(3)

Small Arms and Ammunition. (b)(1)
Armscor produces several models of handguns, rifles, machineguns, and ammunition, although not in sufficient quantities. Pretoria's first attempt at producing rifles was in the early 1960s when manufacturing began—under license—of Belgian 7.62-mm FAL rifles. The 5.56-mm assault rifle and light machinegun currently in production are copies of the Israeli Galil. In addition, Armscor produces rifle grenades and grenade launchers that, (b)(1)
are also copies of foreign models (see figure 4).

(b)(1)
(b)(3)

Production by Weapons Type

Because of Armscor, South Africa has the largest weapons production capability in Africa and the SADF is the best equipped force south of the Sahara. Armscor achieved this, as stated earlier, largely by acquiring and modifying foreign systems to fit the country's own needs. Only a few types of equipment have been completely designed and built in South Africa. With some exceptions, Armscor's products do not exhibit state-of-the-art technology (see figure 3).

(b)(3)

Although Armscor is taking steps to increase output, its limited capacity for the production of certain weapons leaves gaps that are met by purchases from abroad.

(b)(1)
(b)(3)

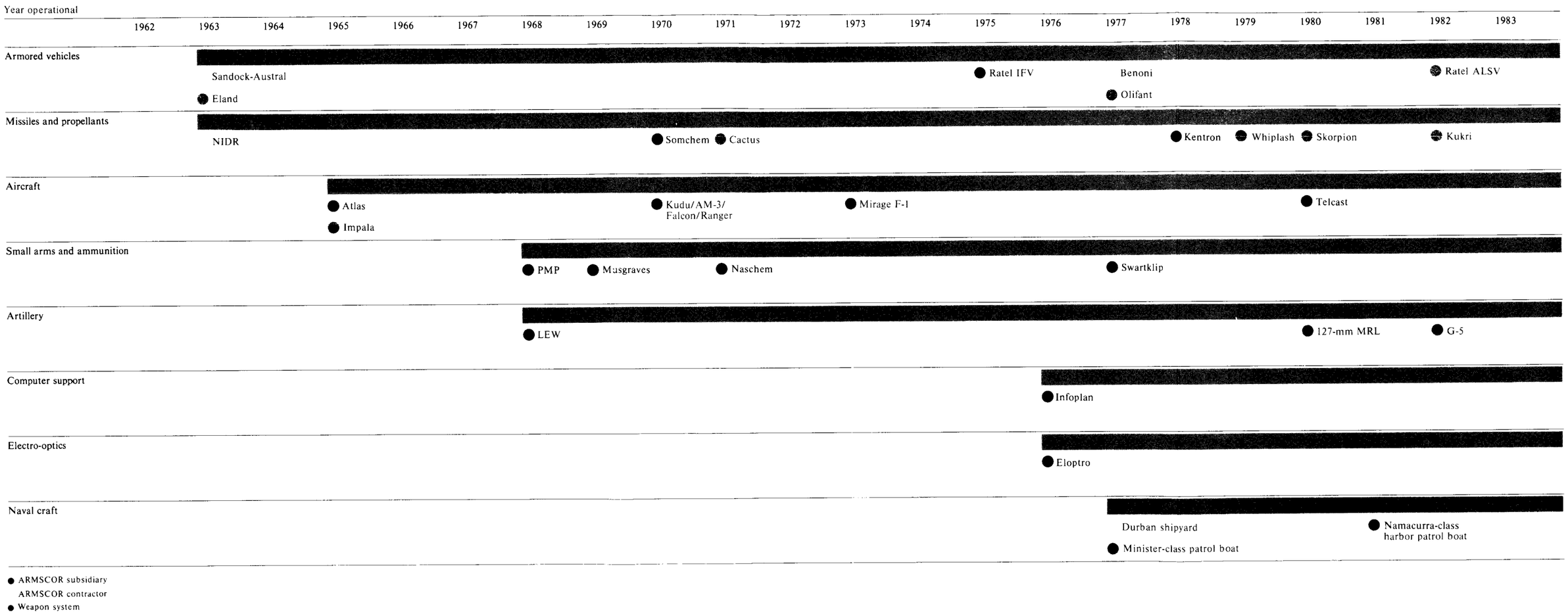
Ground Systems

South Africa has made the greatest strides toward self-sufficiency in the manufacture of ground weapons. Armscor now produces a variety of small arms and ammunition, various types of armored vehicles, and several large-caliber artillery systems.

(b)(3)

(b)(1)
(b)(3)

Figure 3
Evolution of ARMSCOR Plants and Products



(b)(3)

300907 10-83

(b)(3)

Figure 4. South African infantrymen equipped with domestically produced rifles and mortars.

Panorama ©

Artillery. South Africa manufactures few artillery systems, although it recently developed and began to produce the towed and self-propelled versions of a long-range, 155-mm howitzer—the G-5 and G-6, respectively (see figure 5).

(b)(1)

the impetus to develop the G-5 came during South Africa's intervention in the Angolan civil war in 1975, when artillery used by the SADF was unable to match the range of Soviet artillery used by the Cuban and Angolan forces.

(b)(1)
(b)(3)

Figure 5. Top: A South African–produced Samil artillery prime mover towing the G-5, the 155-mm howitzer into position. Bottom: The G-6, the self-propelled version of the South African–produced 155-mm howitzer.

(b)(3)

International Defense Review ©

Armscor also developed a 127-mm multiple rocket launcher after South Africa's incursion into Angola in 1975 (see figure 6). The system—which reached production in 1980—is patterned on the Soviet BM-21 rocket launcher, which the South Africans encountered in Angola. Armscor also produces mortar rounds based on British designs and 60-mm and 81-mm mortars of French design.

(b)(3)

(b)(1)
(b)(3)

Tanks. Armscor's tank production has consisted mostly of modifying and upgrading British Centurions,

(b)(1)

the upgraded Centurion—dubbed the Olifant—will satisfy South Africa's requirements until the 1990s, when Armscor hopes to have an indigenous replacement.

(b)(3)

We believe that South Africa has the capability to produce the Olifant domestically. South Africa has produced diesel engines since 1978—although they are primarily for trucks and tractors—and transmissions since the mid-1970s. Almost any of the South African shipyards or heavy fabrication plants have the capability to manufacture hulls and turrets.

(b)(1)
(b)(3)

Light Armored Vehicles. Armored vehicles were the first major pieces of equipment to be produced in South Africa by private industry. In the early 1960s South Africa started assembling the Eland, a version of the French Panhard AML-245 reconnaissance

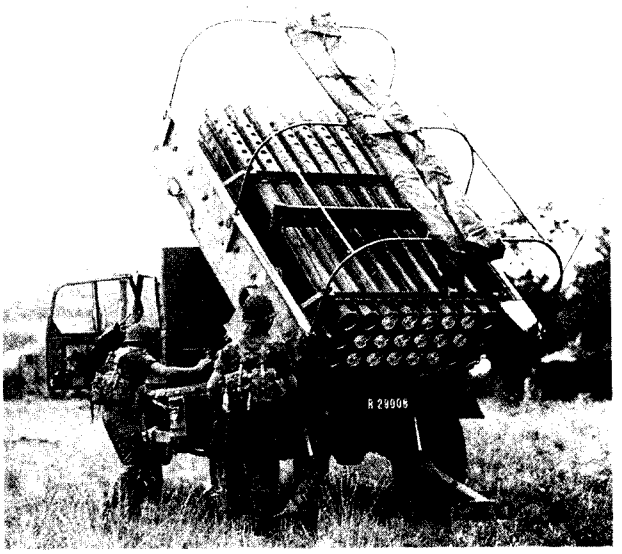


Figure 6. The 127-mm multiple rocket launcher produced by Armscor and designated the Valkiri. *International Defense Review ©*

(b)(3)

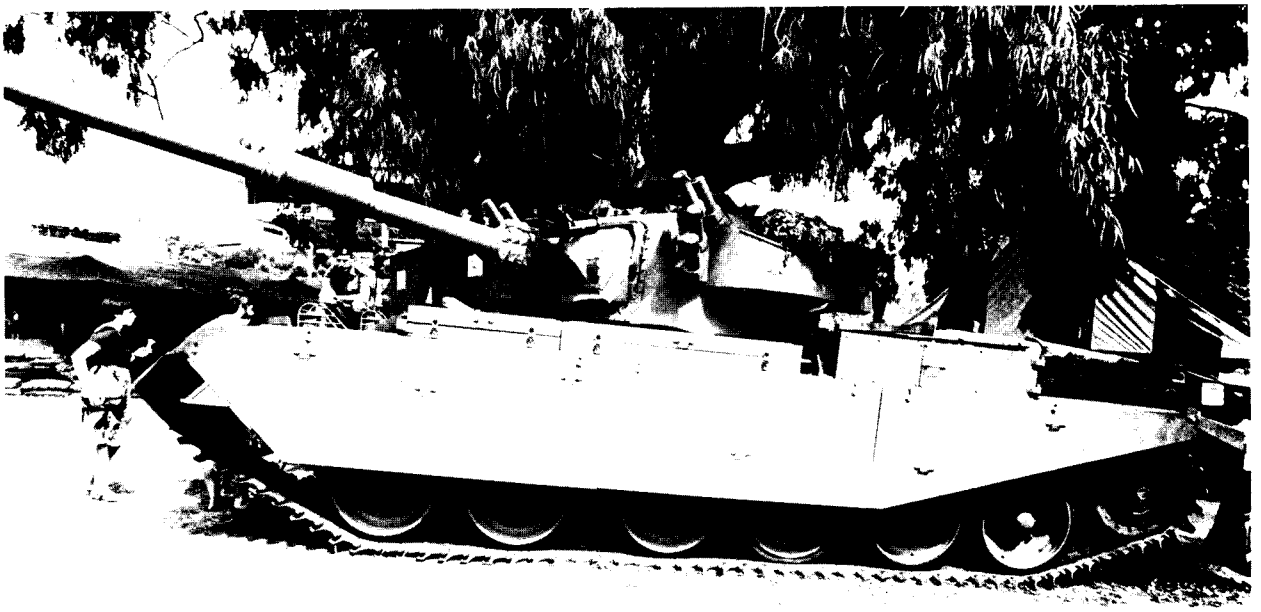


Figure 7. The Olifant *tank—the South African–upgraded and modified version of the British Centurion.*

(b)(3)

Figure 8. One version of the Eland armored vehicle with a 90-mm gun. (b)(3)

Panorama ©

vehicle, using imported machinery and components (see figure 8). By 1979, according to press reports, all parts for the Eland were produced domestically under license. (b)(3)

South Africa has relied entirely on domestic design and manufacture for all other armored vehicles. In 1976 the Ratel Infantry Fighting Vehicle was introduced by Armscor after about four years of development. The Ratel has become one of the most heavily used vehicles of the SADF (see figure 9). We estimate that Ratels are now produced at the rate of 100 to 150 a year. (b)(3)

In 1982 an armored logistic support vehicle that would allow mechanized infantry to operate for up to seven days and 1,000 km from their main logistic support system was introduced as a backup to the Ratel (see figure 10). South Africa has also modified its extensive fleet of SAMIL, all-terrain military trucks that originally were based on West German design and components. They have been converted into armored, mine-resistant vehicles and armored personnel carriers. Among these is the Buffel, introduced in 1973, which has seen extensive service in the counterinsurgency war in Namibia and Angola (see figure 11). (b)(3)

Figure 9. Two Versions of the South African–Designed and Manufactured Ratel Infantry Fighting Vehicle. Top: The Ratel 60 with a 60-mm mortar. Bottom: The Ratel 90 with a 90-mm gun. *International Defense Review* ©

(b)(3)

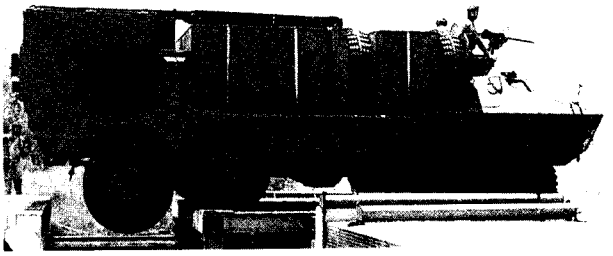


Figure 10. The armored logistic support vehicle recently introduced by Armscor. *International Defense Review* ©

(b)(3)

Naval Systems

South Africa's private shipbuilding industry, which up until the early 1960s had concentrated on ship repair, has been unable so far to take the place of Pretoria's principal military ship suppliers, the United Kingdom and France, after the arms embargo. Even though the South African Navy believes, according to its own accounts, that it has made a "remarkable achievement" in its shipbuilding program, the manufacture of large ships [4] and submarines—a stated goal—remains unattainable at the present time.

(b)(3)

Patrol Boats. Armscor is building the Minister- or MoD-class guided-missile patrol boat under an Israeli license (see figure 12). Domestic production started in 1977-78, and by September 1982 the fifth boat built in South Africa was launched.

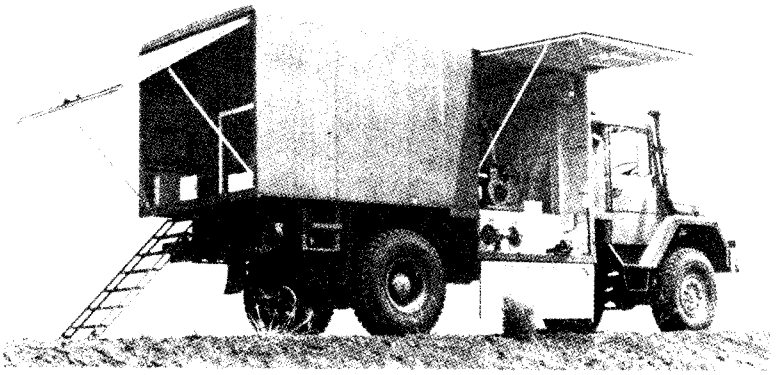
(b)(1)
(b)(3)

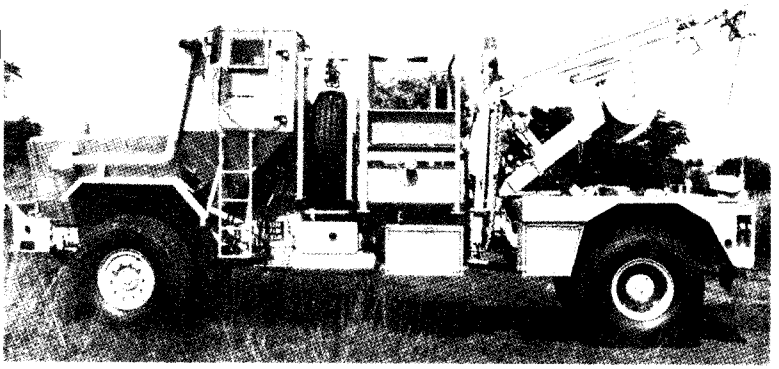
According to *Jane's Fighting Ships,* the South Africans have also produced torpedo recovery vessels since 1969, the Namacurra-type harbor patrol vessel since at least 1981, and a large patrol craft that, according to the US defense attache, is a copy of the British Ford-class patrol boat (see figure 13). A South African Navy officer announced last April that Armscor is building a prototype of a miniaturized mine hunter which will require a low investment.

(b)(3)

[4] As used in this paper, "large ships" are frigates or corvette-size combatants.

(b)(3)





Jane's Military Vehicles and Ground Support Equipment 1983 ©

Figure 11. Various Models of the Samil Trucks Made in South Africa. *Top left: The Buffel armored personnel carrier. Top right: A mobile workshop. Right: A recovery vehicle.*

(b)(3)

Large Ships. Since the mid-1970s, the Navy has repeatedly referred to a corvette building program that would provide it with the capability to extend the range of patrols beyond coastal waters.

(b)(1)

the program is still in the planning stage and at least a decade away. According to US defense attache reports, the South Africans already have blueprints for the corvettes—delivered by France in anticipation of the South African purchase of such French ships—while British firms are believed to be providing the technology for the engines and the communication and electronics systems.

(b)(3)

South Africa is also looking to replace the three Daphne-class submarines acquired from France in the early 1970s. Although as of 1982 no specific design had been approved by the Navy, the US defense attache has estimated, after talking with knowledgeable South African officers, that preliminary work is under way and that the Navy expects to adhere to a timetable consistent with the need to replace the submarines in 10 to 12 years.

(b)(3)

Even though the Navy believes it has the technology and materials and that skilled foreign workers could be recruited for the production of large ships, none of the shipyards in South Africa, in our view, has the specialized equipment and engineering facilities to construct modern submarines or craft larger than the Minister-class.

(b)(1)
(b)(3)

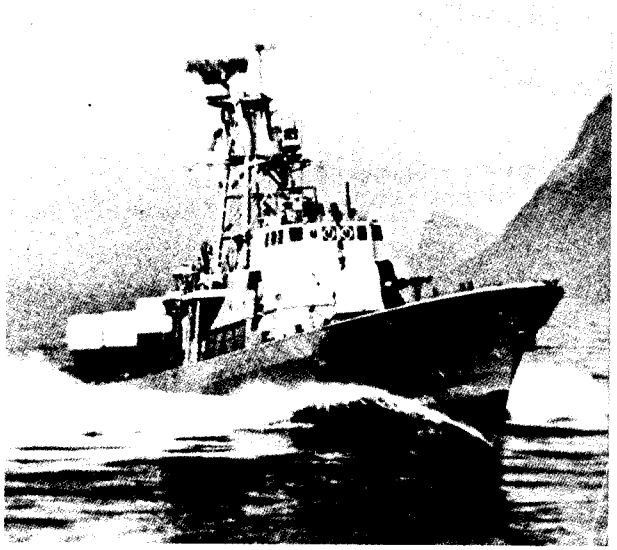


Figure 12. The Israeli-designed Minister-class guided-missile patrol boat built in South Africa under Israeli license. (b)(3)

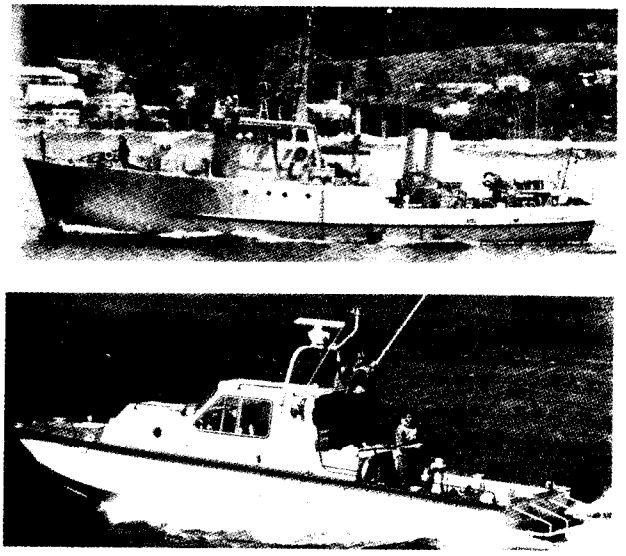


Figure 13. Other naval ships of South African manufacture are a torpedo recovery vessel (above) and the Namacurra-class harbor patrol craft (below). *Jane's Fighting Ships 1982-83 ©* (b)(3)

Air Systems

The establishment of an aircraft industry was one of South Africa's priorities as early as the 1960s. The industry was started with assistance from the French and Italians, who helped in the design and organization of an aircraft production plant and sold licenses to South Africa for the production of aircraft. (b)(3)

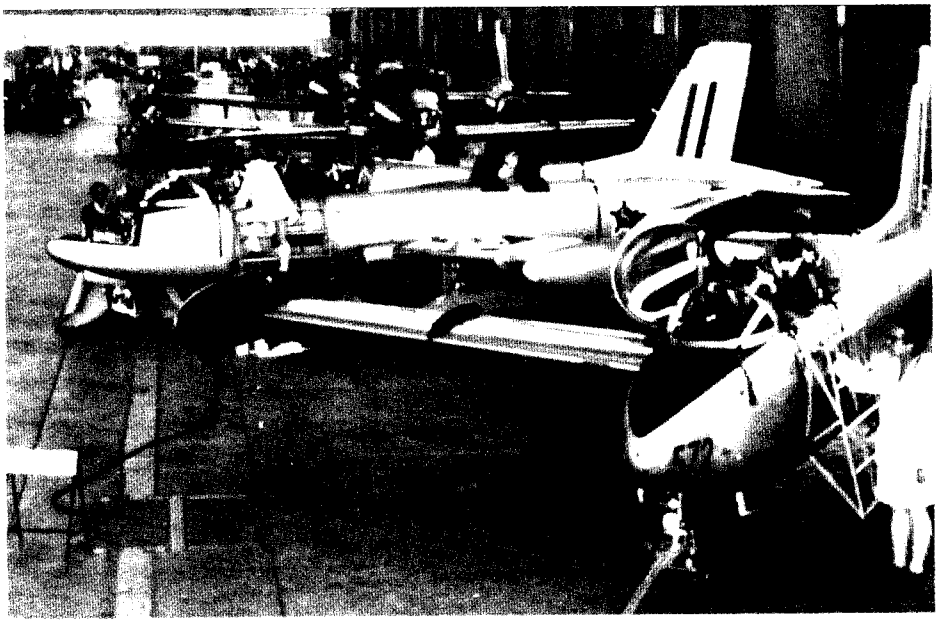
Fixed Wing Aircraft. In 1964 the Atlas Aircraft Corporation, an Armscor subsidiary, purchased a license from the Italian firm Aermacchi to produce Impala MK1 jet trainers. In 1974 Atlas began to assemble the Impala MK2 light ground attack aircraft, as production of the MK1 tapered off. Initially, both versions of the Impala were assembled from imported parts but later were almost totally manufactured in South Africa (see figure 14). (b)(3)

Also in 1974, Atlas started assembling—under supervision of French technicians—French Mirage multipurpose fighter and attack aircraft from imported parts. This was part of a $480 million agreement signed in 1971 that allowed South Africa to purchase 15 Mirage IIIs and assemble 48 F-1s only. (b)(3)

Other aircraft production in the 1970s included four propeller aircraft: C4M-Kudu, a light transport developed by Atlas based on an Aermacchi model; the RSA/200 Falcon jet transport assembled under British license; and the AM-3 Bosbok and S.205 Ranger military utility planes, assembled under Italian licenses (see figure 15). (b)(3)

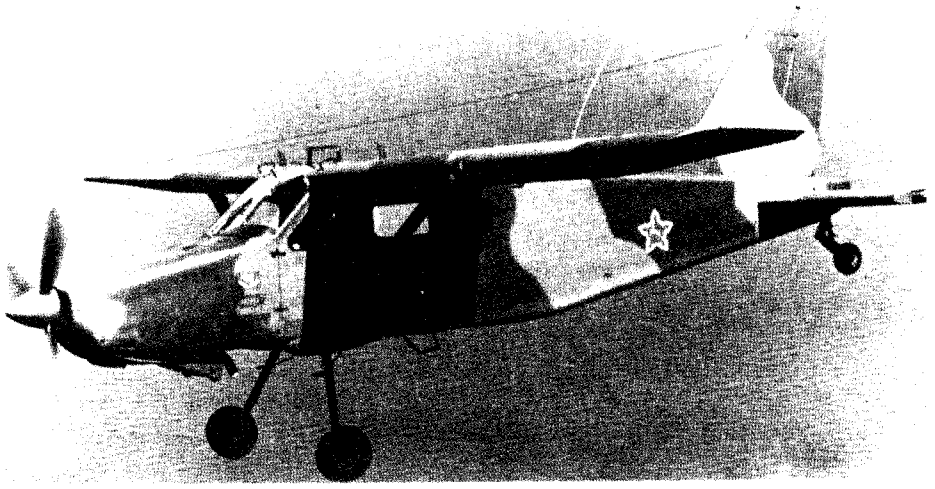
At present the only aircraft being produced are the Kudu and the Impala MK2. Armscor announced in August that production of the Impala will end in the near future. The South Africans have several projects under way at home and abroad to modify and improve their Mirage aircraft. (b)(3)

Figure 14. Impala jet aircraft under production at the Atlas aircraft plant.



(b)(3)

Figure 15. The C4M Kudu, one of the two aircraft currently produced by Atlas.



Janes's All the World's Aircraft 1982-83 ©

(b)(3)

Helicopters. All of the helicopters in the South African inventory are of foreign manufacture. Puma medium-size transport helicopters and Alouette III general purpose helicopters were purchased from France in 1970.

(b)(1)

Armscor has not made public any details about the helicopter it plans to produce.

(b)(3)

South Africa remains dependent on foreign supplies of technology, components, and spare parts for nearly all of its aircraft. Since the United Kingdom stopped supplying aircraft to South Africa in 1963 in accordance with the UN voluntary arms embargo, France stepped in to fill the gap. The French stopped supplying fighters and helicopters in 1978, when they decided to abide by the mandatory UN embargo, although they continued to honor contracts for spare parts.

(b)(1)
(b)(3)

Since the late 1970s, Israeli assistance to the aircraft industry has replaced that of France. One form of Israeli aid came to light in June 1983 when the Mozambicans shot down a reconnaissance drone reported to be of Israeli design.

(b)(1)

Production of the drone may be in the hands of the private sector; according to *Jane's All the World's Aircraft*, a facility in Durban had produced two prototypes of drones in early 1982 (see figure 16).

(b)(3)

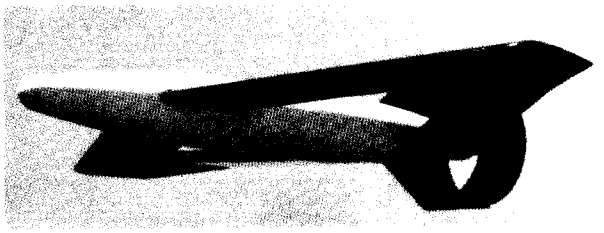


Figure 16. Prototype of a South African–built remotely piloted vehicle. Among its potential missions are reconnaissance, surveillance, and photographic survey. *Janes's All the World's Aircraft 1982-83 ©*

(b)(3)

(b)(1)
(b)(3)

Future Aircraft Systems. South Africa so far lacks the capability to produce high-performance aircraft to replace its fleet of Mirages. It also has a need for in-flight refueling tankers and various types of reconnaissance aircraft, including replacements for its aging maritime surveillance and rescue aircraft. For the latter, Armscor has expressed a preference for US civilian aircraft that could be modified,

(b)(1)

we believe that South Africa will probably concentrate on domestic production of a fighter,

(b)(1)

This could be accomplished by modifying and upgrading its Mirages or by designing and building an aircraft with foreign assistance. We expect that South Africa will emphasize production of helicopters to add mobility to its counterinsurgency forces.

(b)(3)

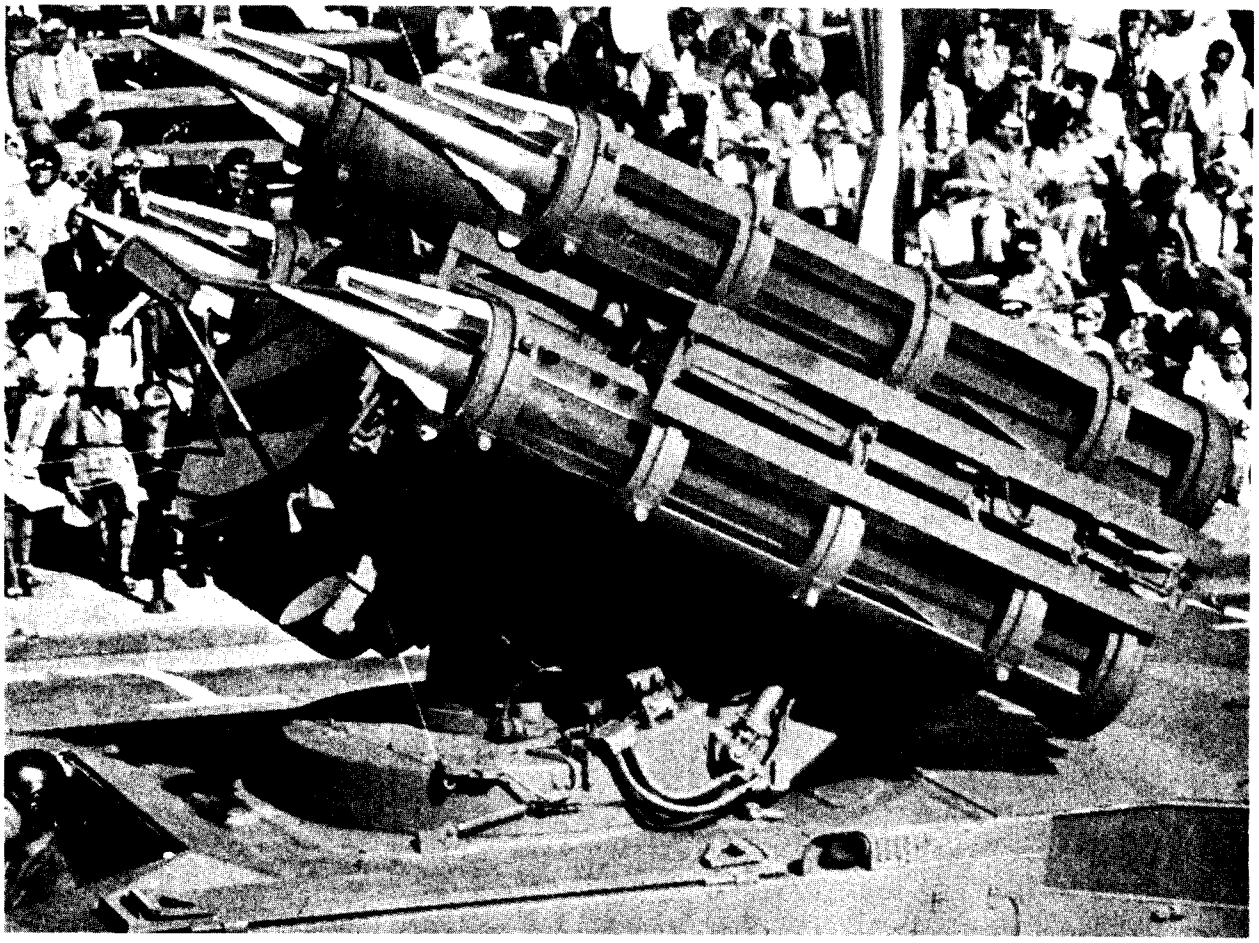


Figure 17. The Cactus missile was developed jointly by France and South Africa in the 1960s. It is currently in the South African inventory.
(b)(3)

Missile Systems

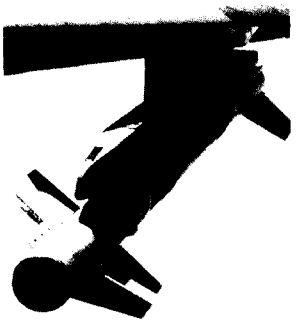
(b)(1) CSIR established the National Institute for Defense Research (NIDR) in 1963 to develop and produce missiles, and in 1968 CSIR set up a missile test range in Natal Province. In 1978 Armscor announced the establishment of Kentron, a subsidiary responsible for missile development because of the many missile-related projects that were under way. (b)(3)

(b)(1)
(b)(3)

Surface-to-Air Missiles. South Africa's first attempt at missile production was a joint venture with the French firm Thompon-CSF during the mid-1960s.

(b)(1)

(b)(3)



International Defense Review ©

Figure 18. The Kukri V-3 missile is now in service with the South African Air Force on Mirage IIIs and F-1s.

(b)(1)
(b)(3)

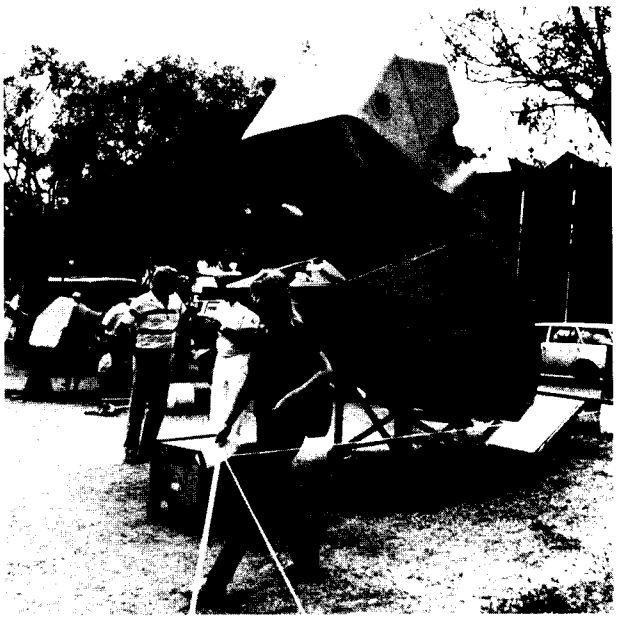


Figure 19. Skorpion *missile and canister installed on Minister-class guided-missile patrol boat.* (b)(3)

Air-to-Air Missiles. The principal air-to-air missiles (AAM) in the SADF inventory are the French Matra R-530 and R-550 and the Kukri, which is made in South Africa. In 1979 Armscor introduced its first domestically produced AAM, the Whiplash or V-1, which was a modification of the US Sidewinder, a missile acquired from the United States in the early 1960s. The modifications included upgraded propellants and motors, improvements to the guidance system, and an optical sight built into the pilot's helmet for a "look and shoot" capability. According to DIA analysis, the Kukri or V-3 is a more advanced version of the V-1 and includes some features of the Matra. Armscor unveiled the Kukri at the Athens International Arms Exposition in October 1982 (see figure 18).

(b)(3)

Surface-to-Surface Missiles. During the 1970s South Africa expected, in vain, that France would supply naval surface-to-surface missiles (SSM).

(b)(1)

In 1980 the South African Navy introduced a naval missile, the Skorpion, which it claimed was indigenously designed and produced. However, both the container-launcher and the missile are similar to the Israeli Gabriel system. Doubting the existence of a local capability for the manufacture of this missile, the US defense attache speculated that South Africa purchased it from Israel. Moreover, the Skorpion missile system is installed on the Israeli-designed Minister-class guided missile patrol boat (see figure 19).

(b)(3)

Antitank Missiles. Armscor has not yet produced its own antitank missile.

(b)(1)
(b)(3)

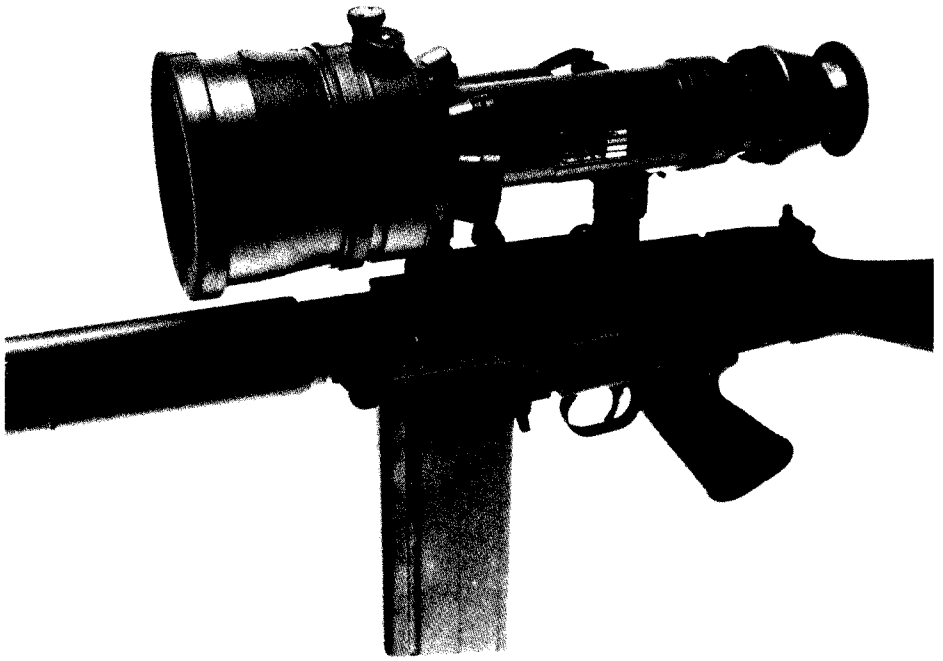
Air-to-Surface Missiles. A program for an air-to-surface missile seems to have been shelved in recent years

(b)(1)

Recent press reports that South Africa is manufacturing a missile similar to the French Exocet—with the assistance of an unidentified country in the Far East—remain unconfirmed

(b)(1)

Figure 20. A night-vision telescope mounted on an R-1 rifle, both of South African manufacture.
(b)(3)



Panorama ©

(b)(1)
(b)(3)

Other Materiel

Electronics, Radars, and Air Control Systems. Accomplishments by Armscor over the last decade, and its industrial expansion, lead us to believe that it has the capability to produce at least some of the electronics and optical systems, gyroscopes, and other components of the guidance and control package as well as propellants, rocket motors, and fuselages for their missile systems. In 1980 Armscor announced the establishment of a naval radar manufacturing industry in South Africa.
(b)(3)

(b)(1)
(b)(3)

Nonetheless, South Africa continues to be heavily dependent on foreign sources for electronics, radars, and air control systems.

(b)(1)
(b)(3)

Fuses, Bombs, and Mines. (b)(1) South Africa now has developed its own capability to produce various types of fuses, bombs, and mines. During the 1970s, Israeli and possibly West German and Belgian firms provided proximity fuses, as well as equipment and technology for making fuses for small- and medium-caliber artillery and mortars. (b)(1) (b)(3)

Bomb design and production have developed at a faster rate than those of fuses even though there has been relatively little foreign help. (b)(1) The US defense attache in Pretoria estimates that the technology in use now by Armscor in manufacturing mines is advanced by Western standards. (b)(1) (b)(3)

Communications Equipment. South Africa claims self-sufficiency in communications equipment. There is little information to verify this claim, but recent South African advances in the field reveal the extent of its capabilities. In October 1982 Armscor introduced at an international arms exhibit a new frequency-hopping radio. According to the descriptive literature, the radio as well as a mobile VHF radiotelephone tactical command system are produced by a private South African contractor for Armscor (see figure 21). (b)(3)

Figure 21. South African soldiers operating the manpack version of South Africa's newest frequency-hopping radio. (b)(3)

International Defense Review ©

The Sum of the Parts

In the most recent South African White Paper on Defense, published in 1982, the list of accomplishments of the domestic arms industry included self-sufficiency in artillery guns and rockets; fire-control equipment; short-range guided missiles; minicomputers; mine detectors and detonators; mine resistant and armored vehicles; tactical telecommunications equipment; antipersonnel and antivehicle ground mines; and small arms and ammunition. Notably absent from this list are high-technology and costly equipment such as aircraft, naval ships and systems, radars, electro-optics, and electronic warfare equipment. (b)(3)

With a few exceptions, we believe this list is accurate. Overall, the South African arms industry has been successful in supplying the SADF—in particular the ground forces—with most of the equipment it has needed, although at a higher cost than imports. The industry has expanded to address most requirements arising out of gaps in the inventory as well as to plan ahead for equipment to improve military capabilities. Nevertheless, the industry seems to be at its best when it modifies, copies, or repairs existing equipment. (b)(3)

In spite of the industry's achievements, some components have been unable to produce some arms in sufficient quantities and quickly enough to replenish and build up inventories. This was particularly true after the Angolan incursion in 1975, when the SADF expended large quantities of ammunition; at that time South Africa turned to the European market. This constraint particularly affects some ground weapons systems and high-technology items which have components of foreign manufacture and whose production requires long leadtimes. This would impair South

(b)(3)

Africa's ability to fight a protracted conventional war and, in our judgment, prevent Pretoria from assuming the role of a reliable arms supplier in a third-party conflict. (b)(3)

As South Africa moves to modernize its arms inventory, it faces both old and new problems. Armscor has suffered consistently from a lack of skilled personnel at all levels. It has tried to overcome this by providing training programs, sending its own personnel abroad, and recruiting foreign personnel. We believe that Armscor has made progress in this area, but it will continue to be dependent on foreign technicians for the development of future weapons systems. (b)(3)

Perhaps the most crucial problem afflicting Armscor today is insufficient capital, which stems from the continuing recession and budget deficits. The Navy, for example, has been unable to begin a large ship construction program because of a lack of funds. Armscor announced in 1982 an arms export drive that it hopes will help alleviate its financial problems. While exports will probably rise from their current low levels, we doubt that they will increase sufficiently to enable Armscor to meet its financial objectives. (b)(3)

Barring a major change in the regional military equation or in South Africa's internal security situation, we believe that Armscor will continue to adequately fulfill the country's armaments requirements. Although South Africa's needs for more advanced technology will continue to increase steadily, the industry has shown considerable flexibility in developing and adapting weapons—both notably with foreign assistance—and probably will continue to do so. We believe that, as in the past, South Africa will acquire foreign technology, personnel, and materiel that it needs despite its pariah status and international arms embargoes. Achievements in the production of high-technology weapons systems will, however, require long leadtimes, even with foreign help. (b)(3)

A major escalation of hostilities between South Africa and its Communist-backed neighbors, the breakdown of internal security, or a combination of increased external and internal security threats could, however, result in armaments requirements significantly in excess of Armscor's capabilities. A major broadening of the Namibian conflict stemming from a direct involvement of Cuban forces, for example, would probably result in the irreplaceable loss of South African jet fighters and helicopters. Already Pretoria protects its inventory of Mirage jets by avoiding high risk missions over southern Angola. Likewise, prosecution by the SADF of a "two front war" such as might result from a continuation of the Namibian conflict at current levels coupled with the eruption of large-scale clashes along the Mozambique border, would stretch the SADF—and Armscor—thin. In a prolonged conflict of this nature, shortages would appear across the board, first in aircraft and before long in other categories of arms. (b)(3)

Implications for the United States

South Africa's achievements in armaments production have allowed Pretoria to pursue aggressive regional military policies without being pinched by dependency on foreign suppliers of weapons. We believe that improvements in weapons production will help to reinforce South Africa's sense of its ability to control future developments in southern Africa. This, in our view, will make South Africa more resistant to US and Western pressure to modify both its domestic and regional policies. (b)(3)

South African officials, however, have frequently expressed a preference for US military equipment, especially high-technology items. Continued acquisition by Armscor of US military technology—either through international arms dealers or through the cooperation of close US allies such as Israel—will create periodic problems for the United States. The Soviets can be expected, for example, to cite South Africa's ease in circumventing the UN arms embargo to bolster their claims that Washington is colluding with Pretoria against black Africa. (b)(3)

(b)(3)

Armscor's Export Drive

The principal reason for Armscor's aggressive effort to expand and diversify its foreign sales is economic. In addition to foreign exchange earnings, South Africa looks to an expanded overseas market to absorb its excess arms production capacity and to reduce the unit cost of its products. (b)(3)

(b)(1)
(b)(3)

Current Export Campaign

In 1982 Armscor and its subsidiary for international marketing, Nimrod Promotions, Ltd., began an aggressive campaign to expand foreign sales. Announcing publicly that exports had become the "new priority," Armscor began to organize teams to market weapons overseas. It announced a goal of increasing yearly export sales from approximately $9 million to $130 million in the near future and expressed its willingness to sell arms to any country that was neither Communist nor hostile to South Africa. (b)(3)

We do not know how many transactions have been concluded by Armscor since it began its drive to sell abroad, nor is it clear whether the interested countries would keep the equipment or act as intermediaries.

(b)(1)
(b)(3)

South Africa's Latin American market has received the most publicity so far. During the Falklands conflict, there were press allegations that South Africa was supplying the Argentines with ammunitions and missiles. (b)(1)

Nevertheless, the willingness of Armscor to sell arms to Argentina probably improved its image as a potential supplier, at least to Latin America.

(b)(1)
(b)(3)

More profound consequences for the United States would follow should South Africa's external or internal security situation lead to military requirements that outstrip Armscor's capabilities. A serious dilemma for the United States could result from major hostilities between South Africa and its Communist-backed neighbors, particularly in the event of increased Cuban and Soviet involvement. In such circumstances, Pretoria would seek to increase its covert purchases of Western military materiel and might also request direct US and Western military aid.

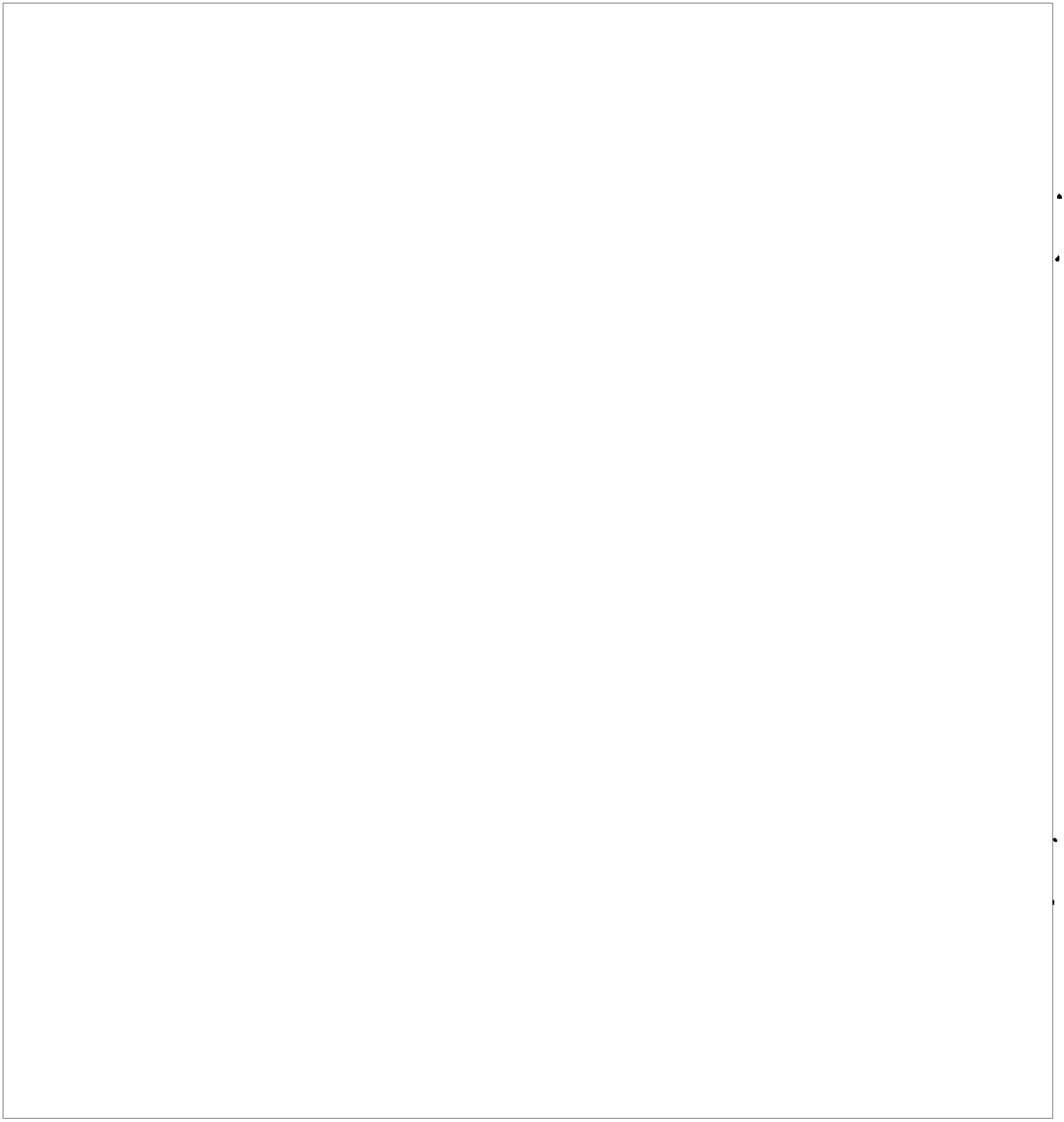
(b)(3)

Figure 22
Armaments Production and Testing Facilities

(b)(3)

700408 (543001) 11-83

(b)(1)
(b)(3)



(b)(3)

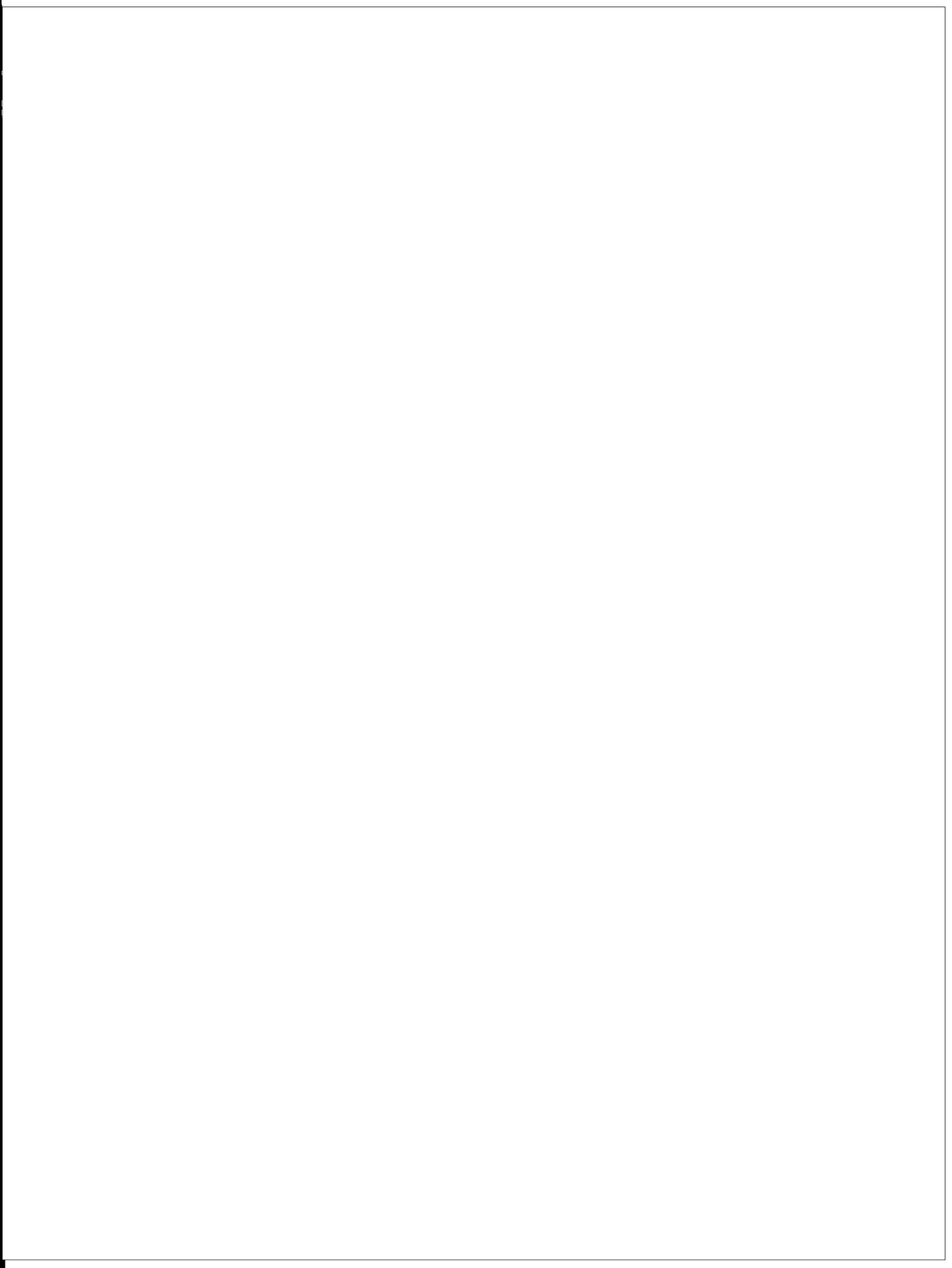
Top Secret

(b)(3)

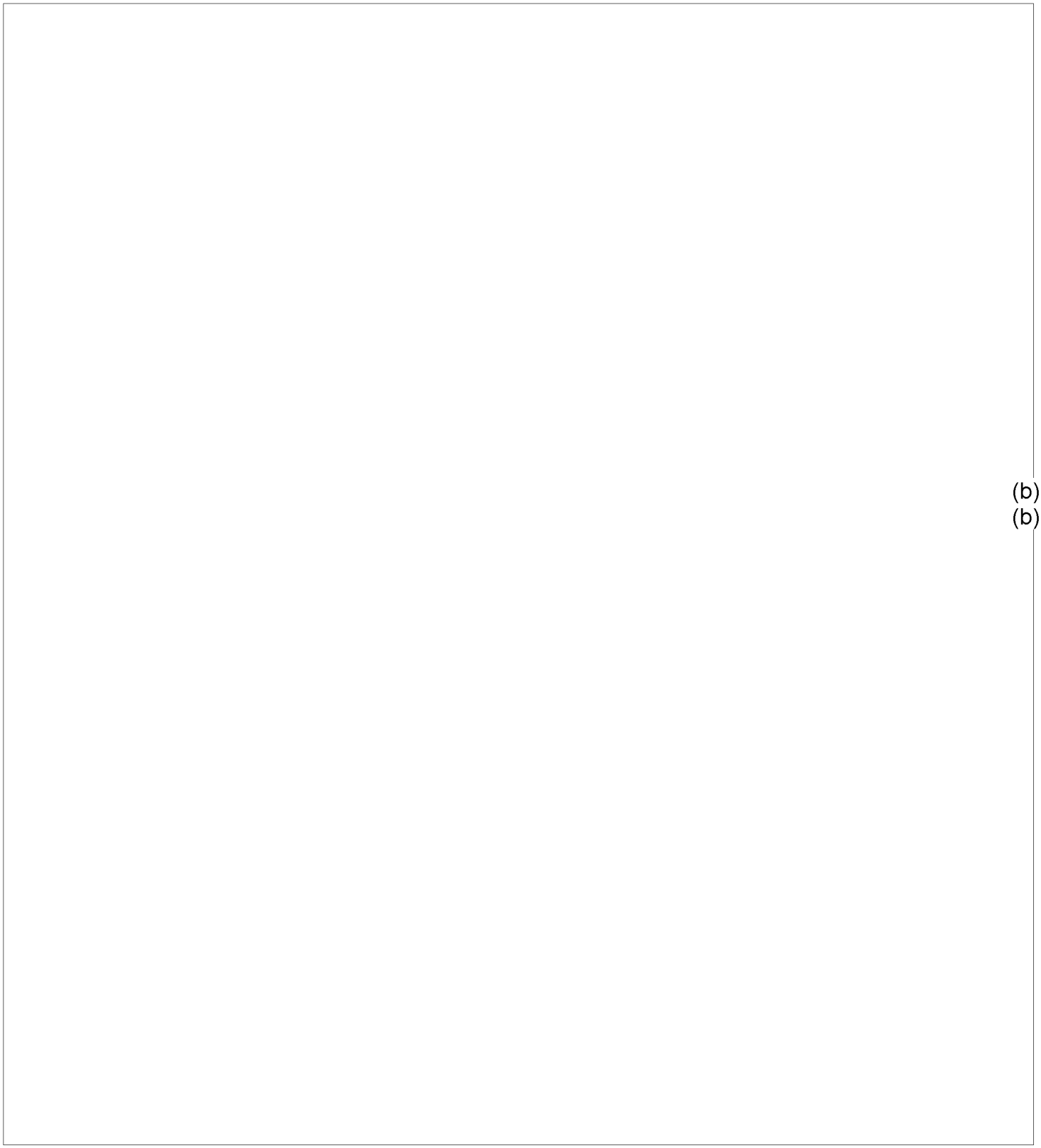
Top Secret

27

(b)(1)
(b)(3)



(b)(1)
(b)(3)



(b)(1)
(b)(3)

(b)(3)

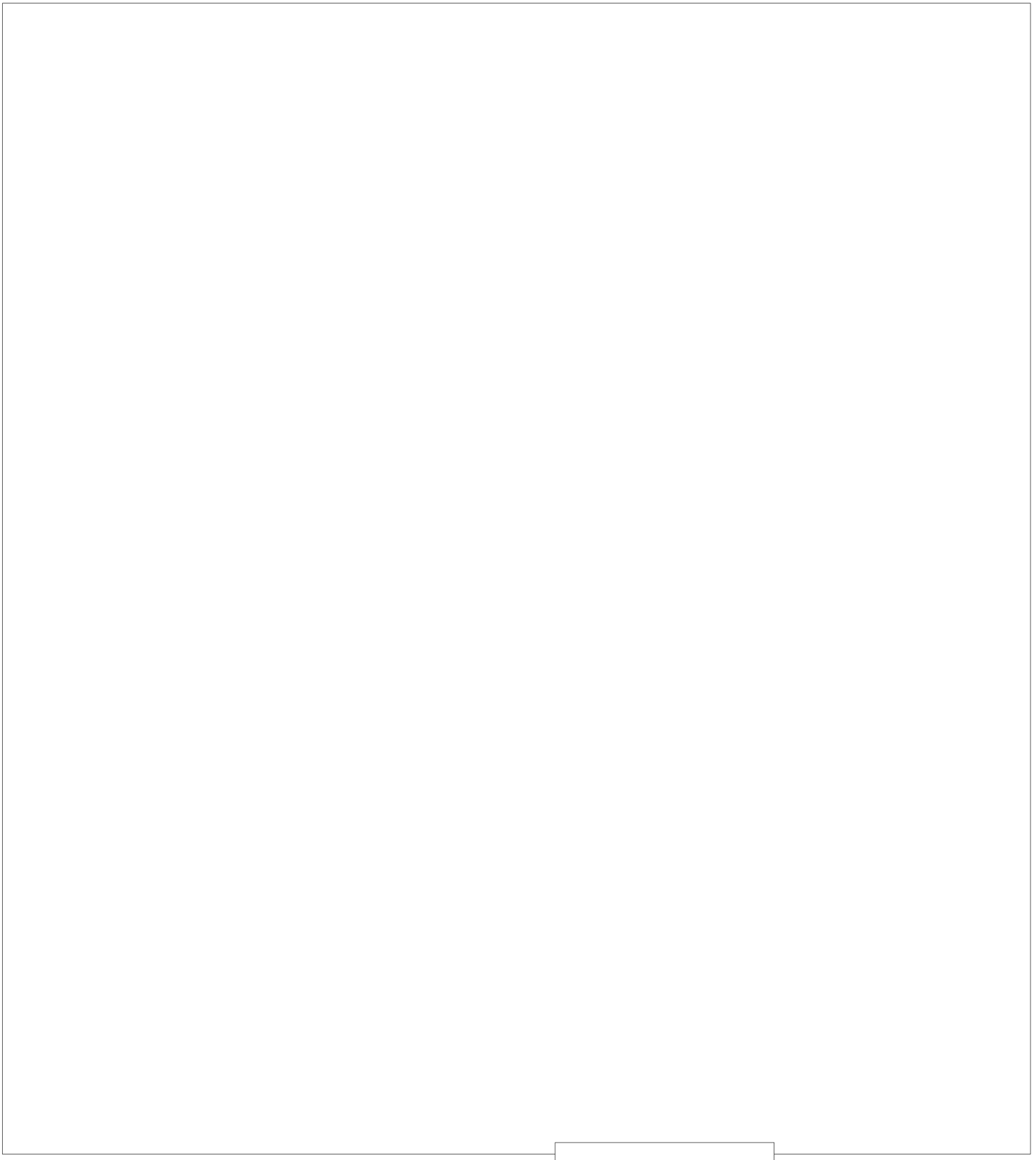
Top Secret

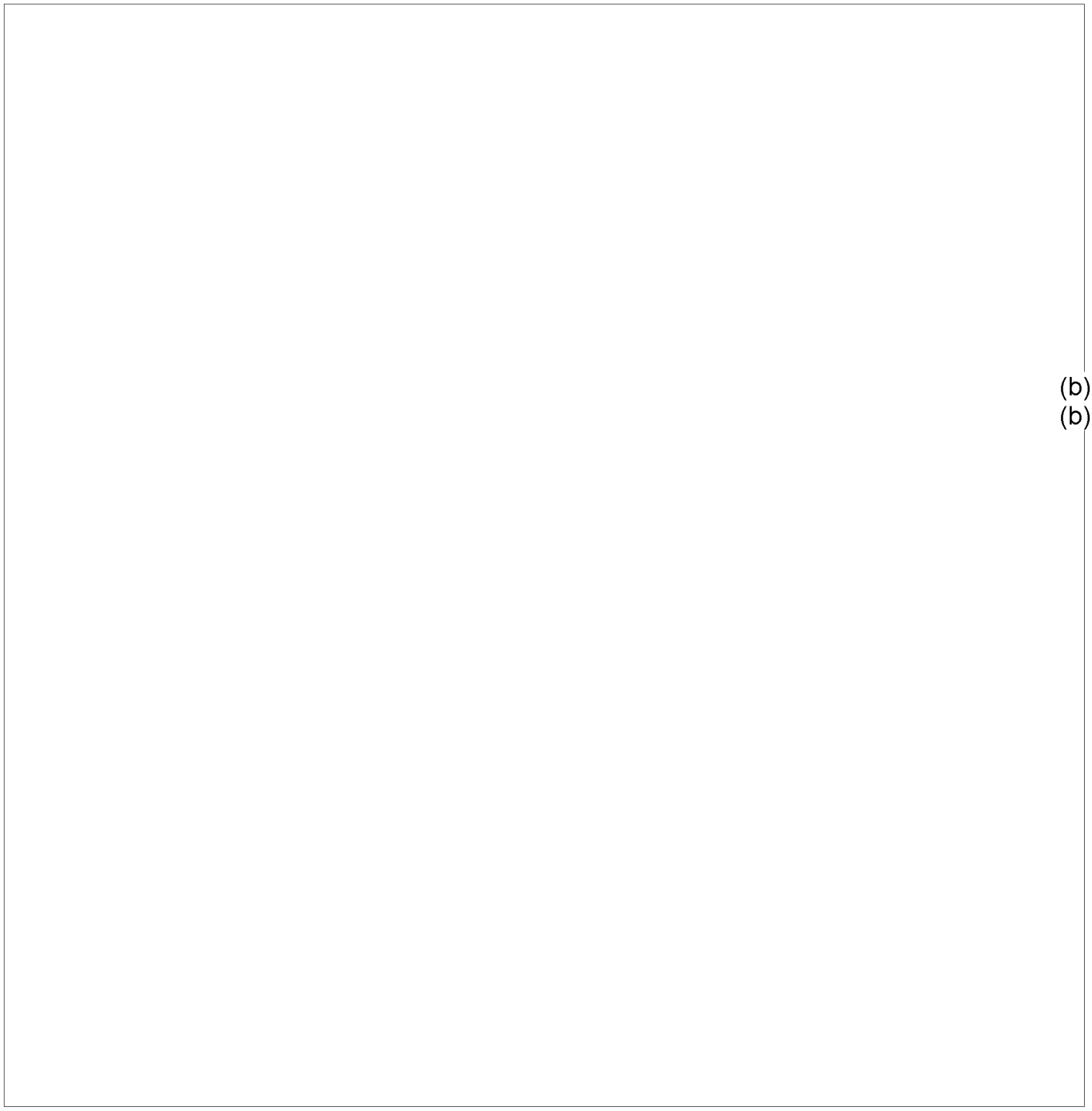
(b)(3)

Top Secret

(b)(1)
(b)(3)

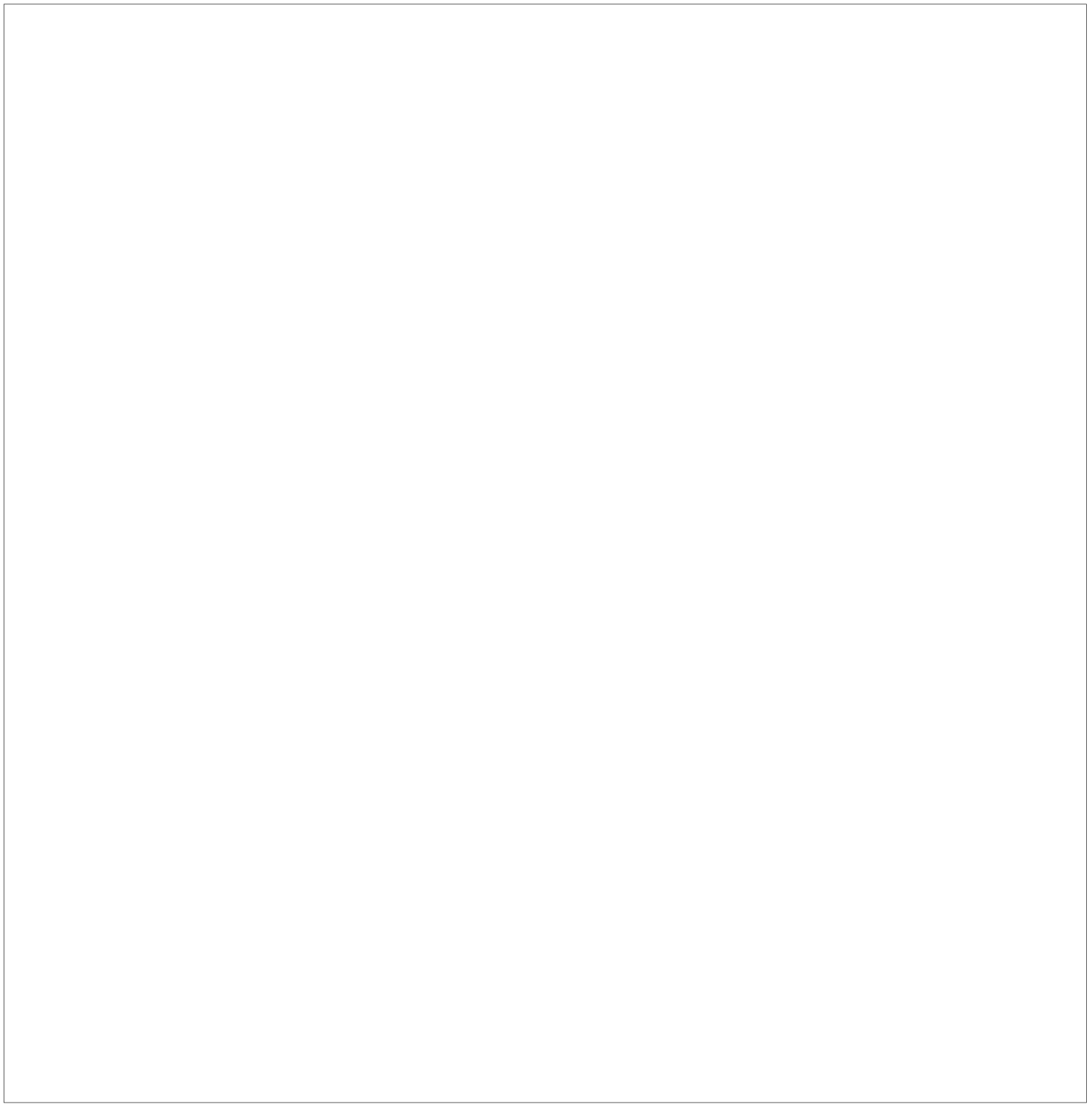
(b)(1)
(b)(3)

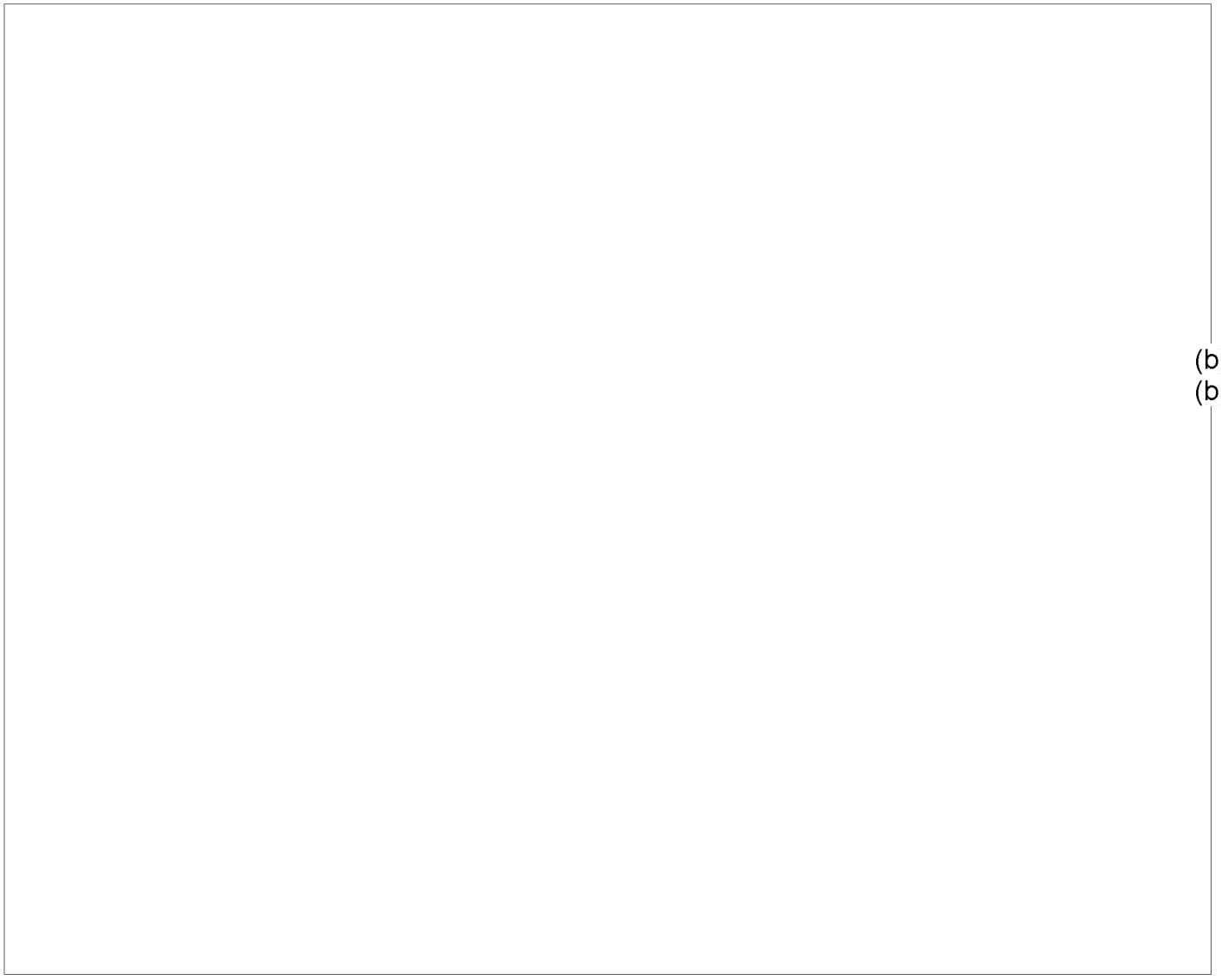




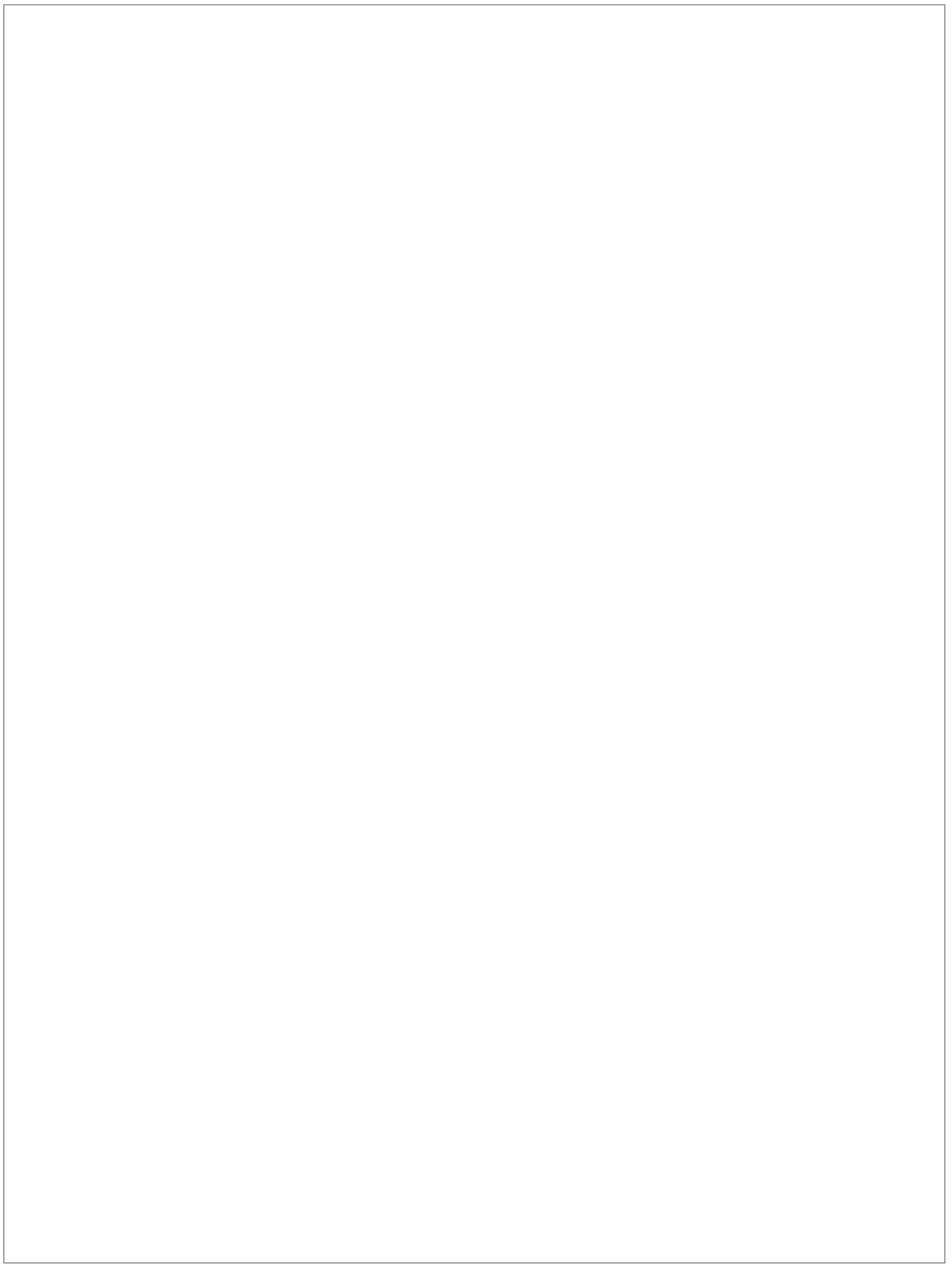
(b)(1)
(b)(3)

(b)(1)
(b)(3)





(b)(1)
(b)(3)



(b)(1)
(b)(3)

(b)(3)

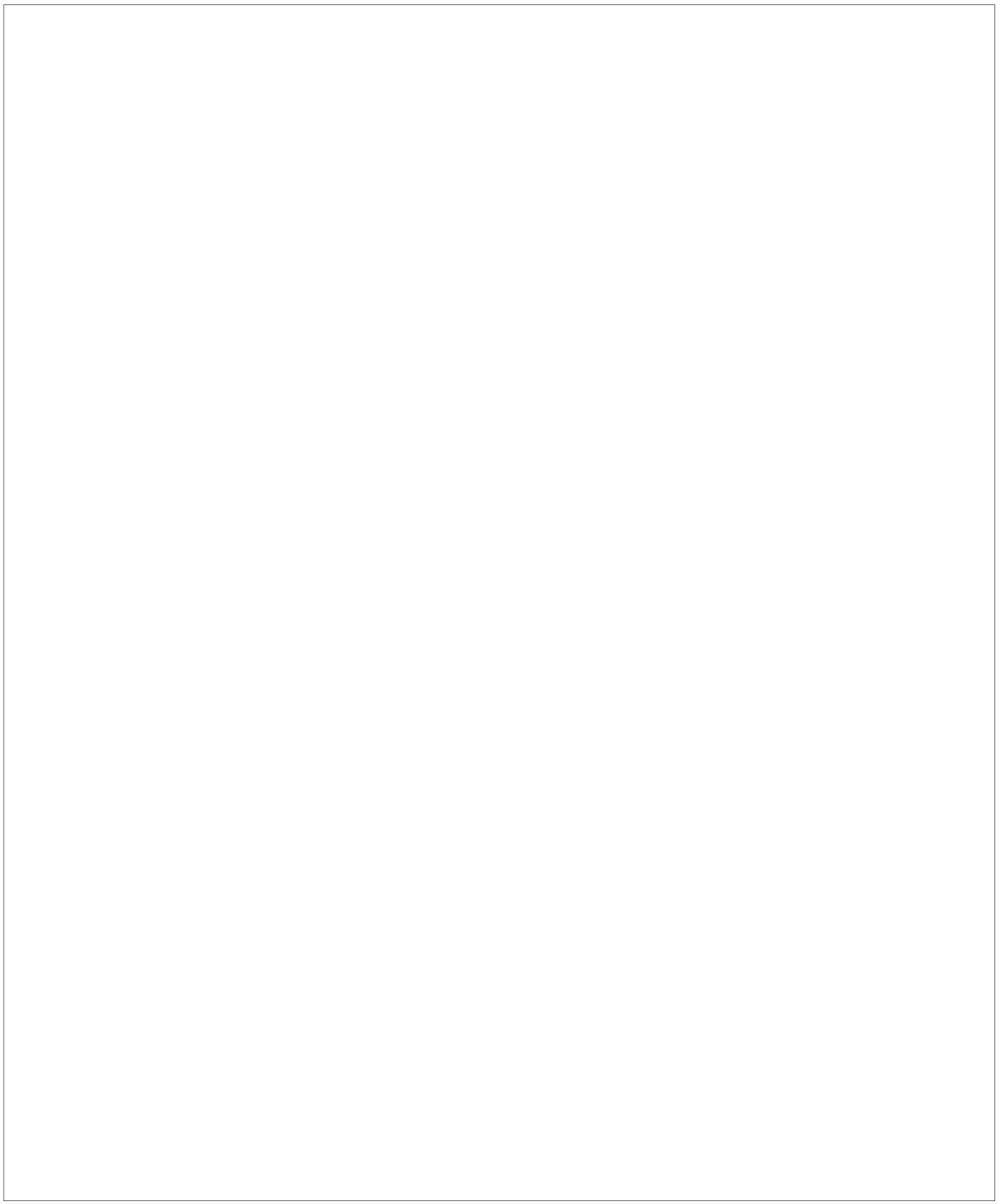
Top Secret

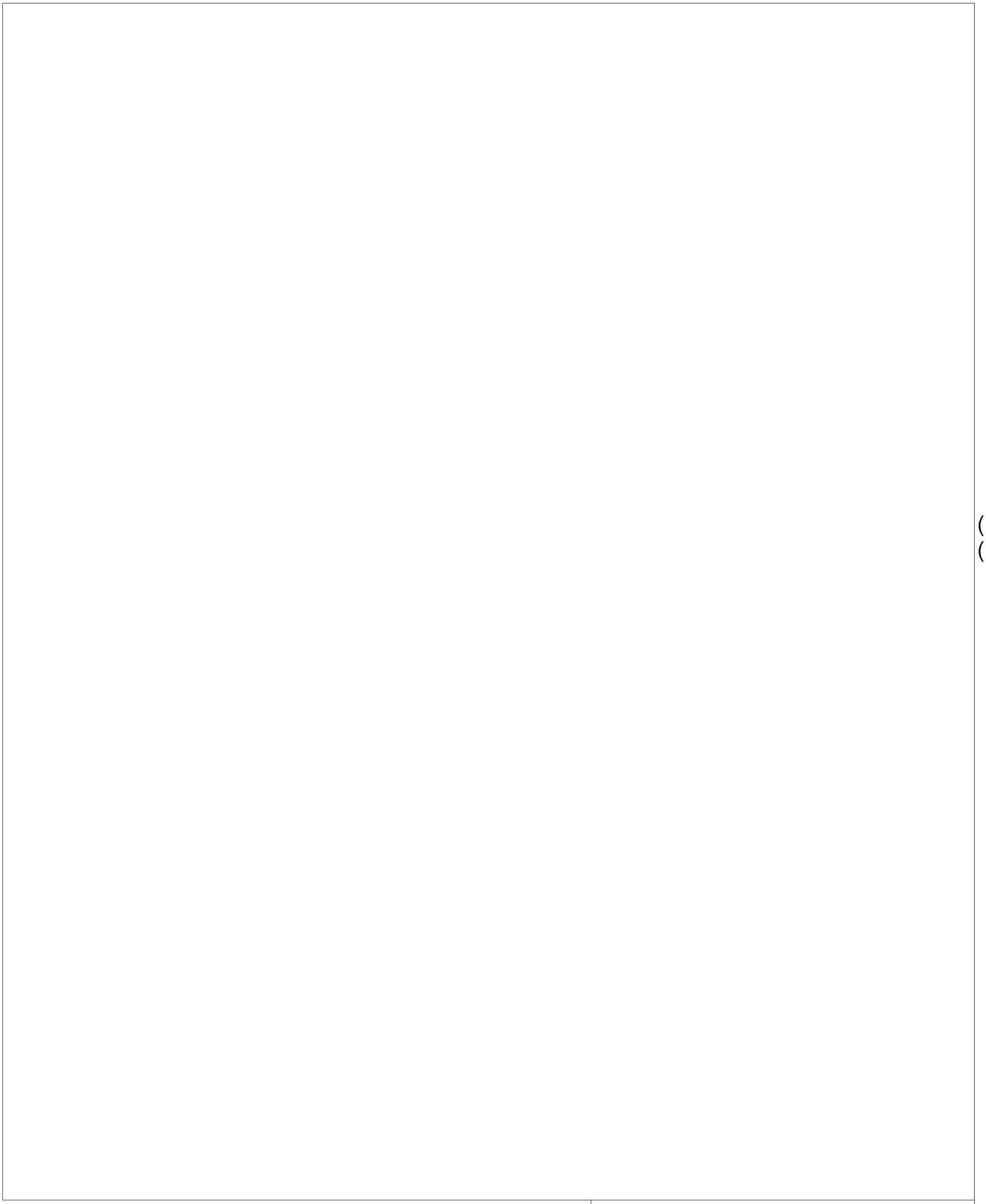
(b)(3)

Top Secret

(b)(1)
(b)(3)

(b)(1)
(b)(3)

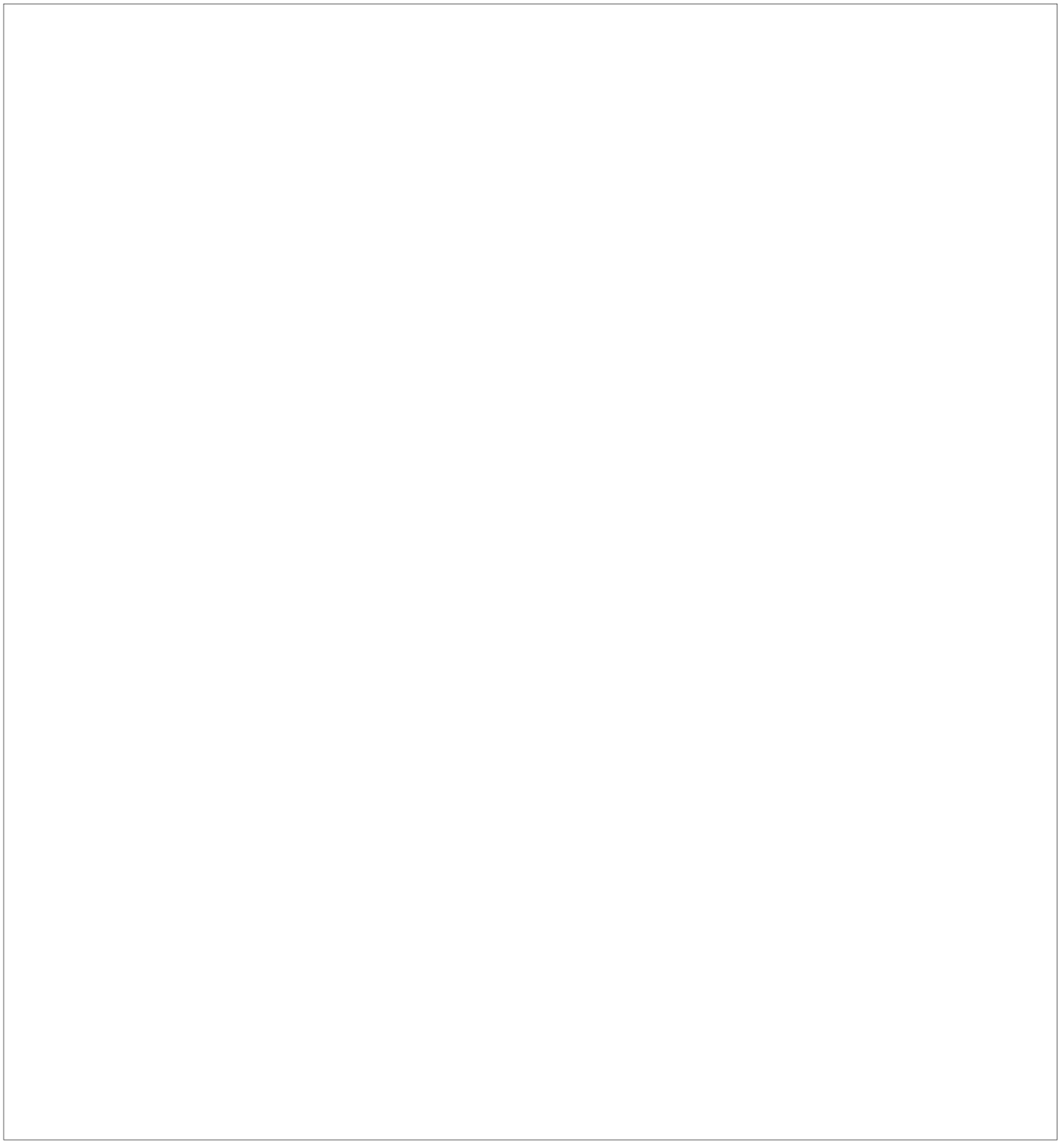


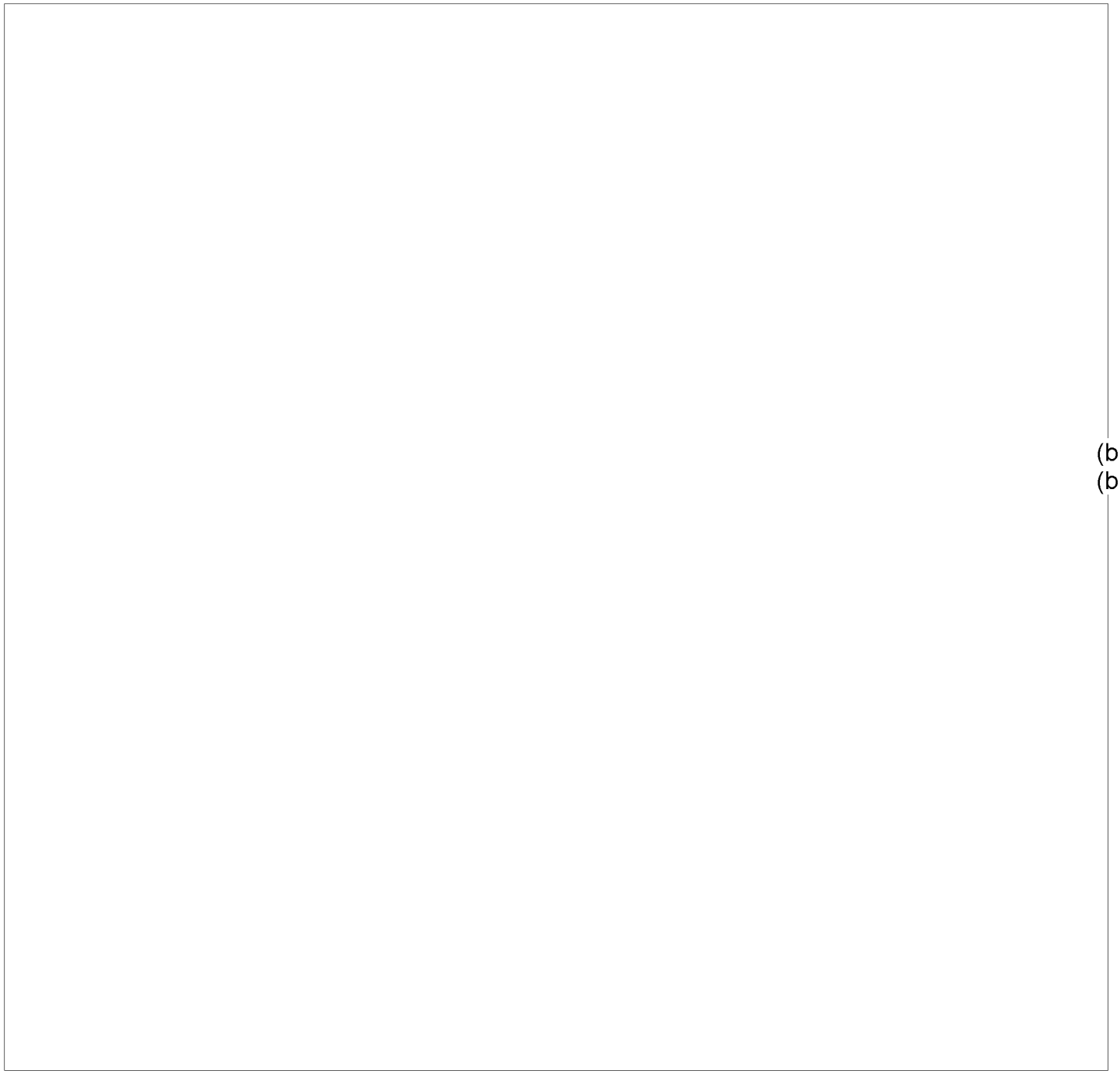


(b)(1)
(b)(3)

(b)(1)

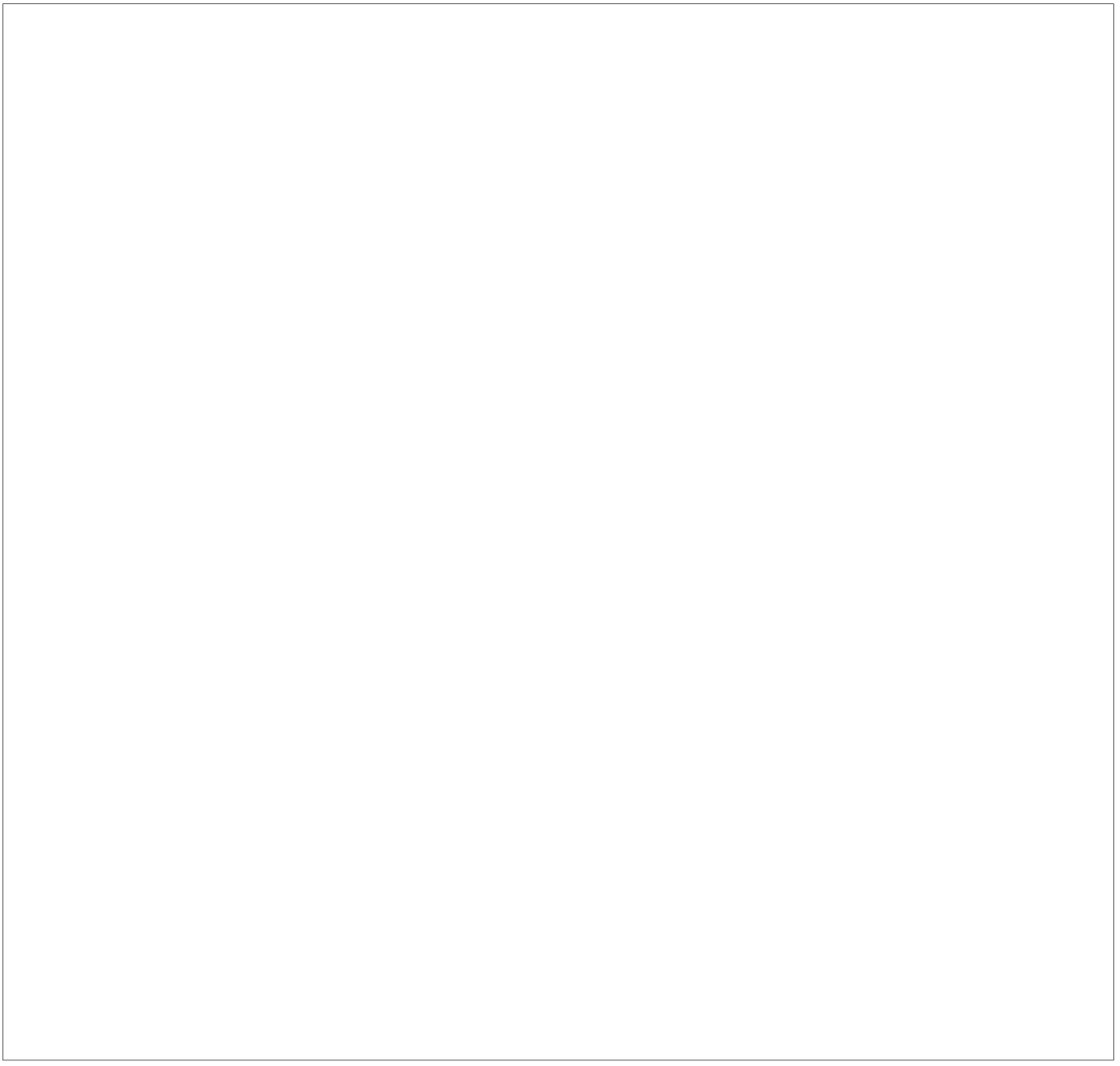
(b)(1)
(b)(3)

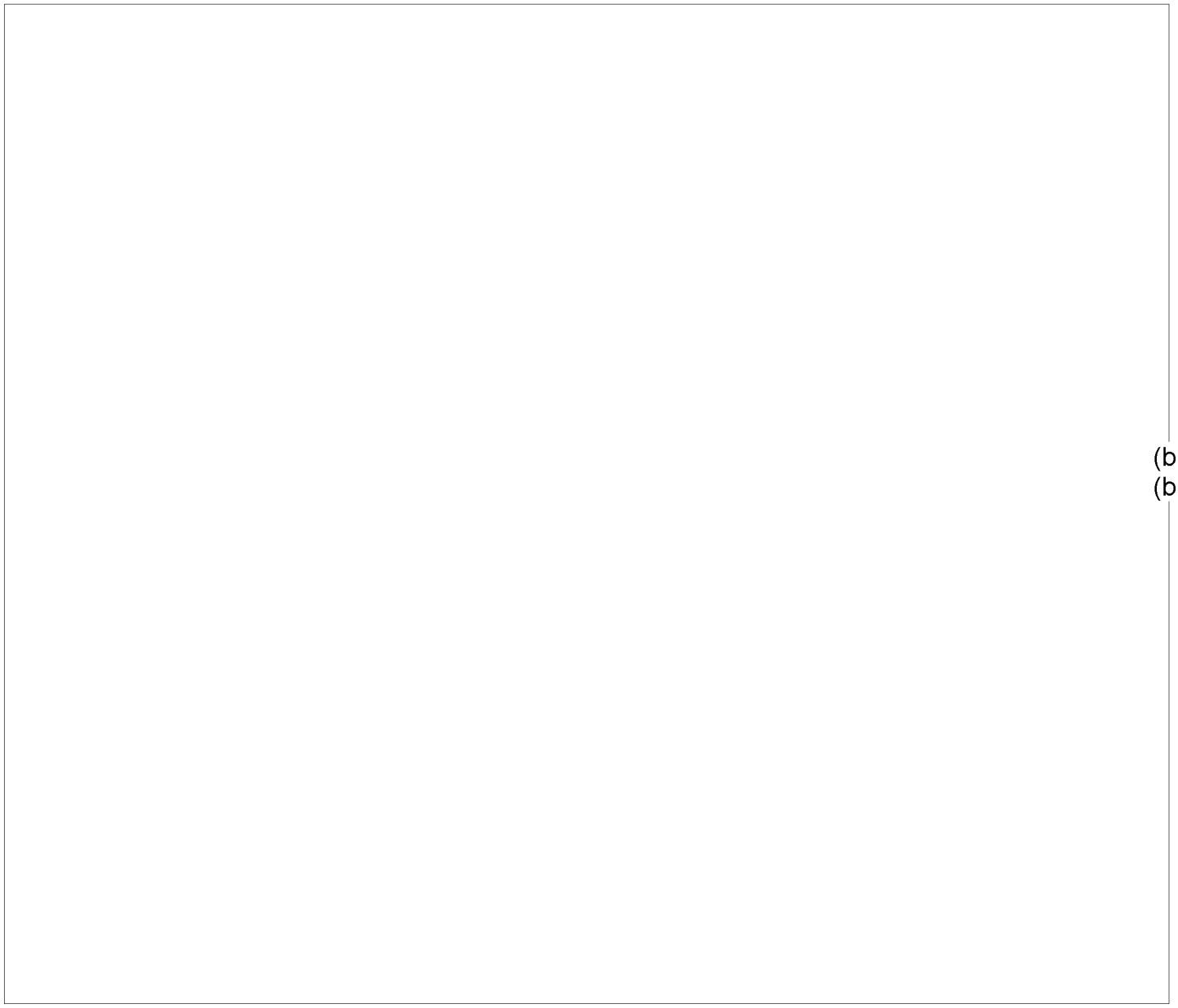




(b)(1)
(b)(3)

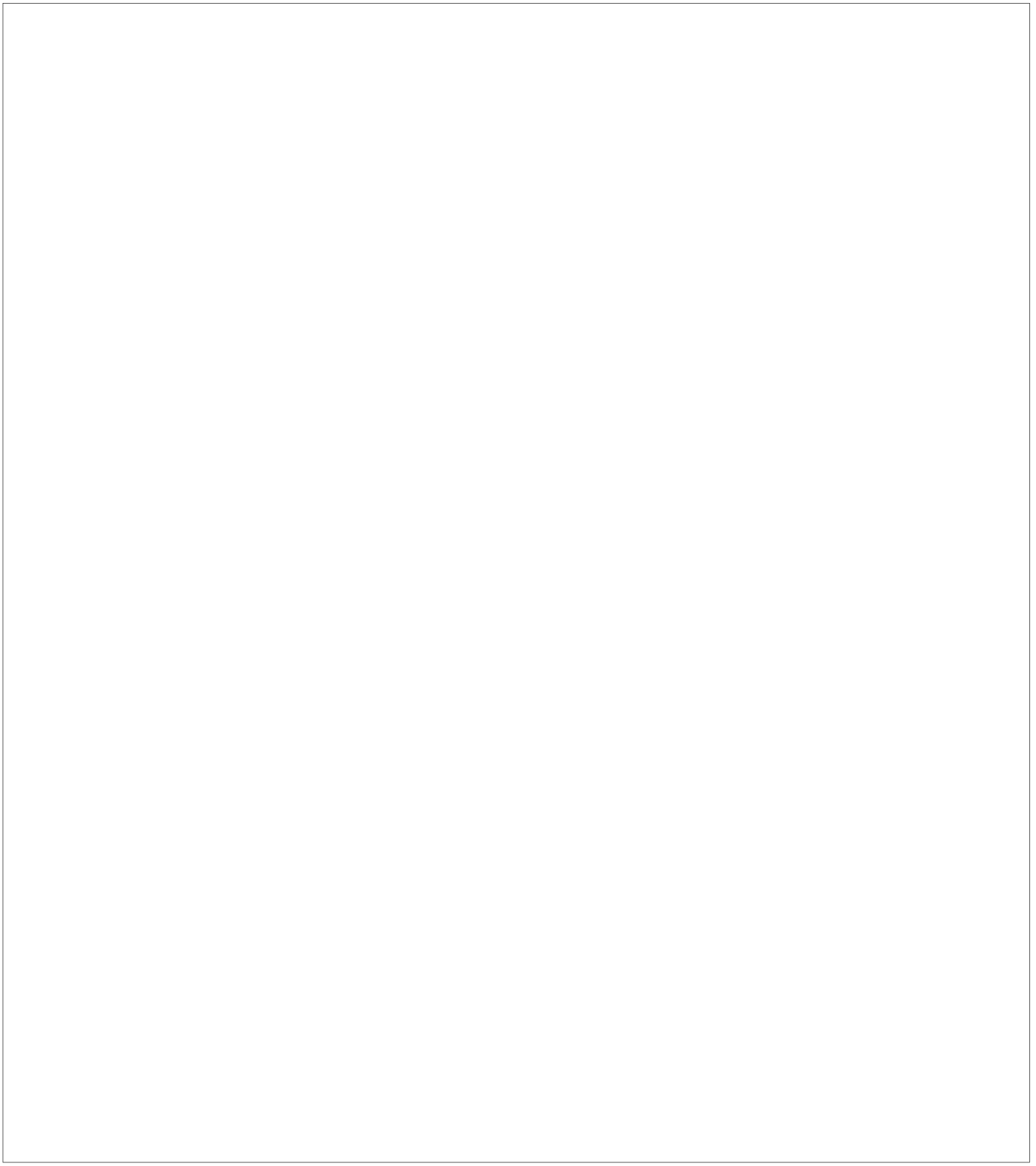
(b)(1)
(b)(3)



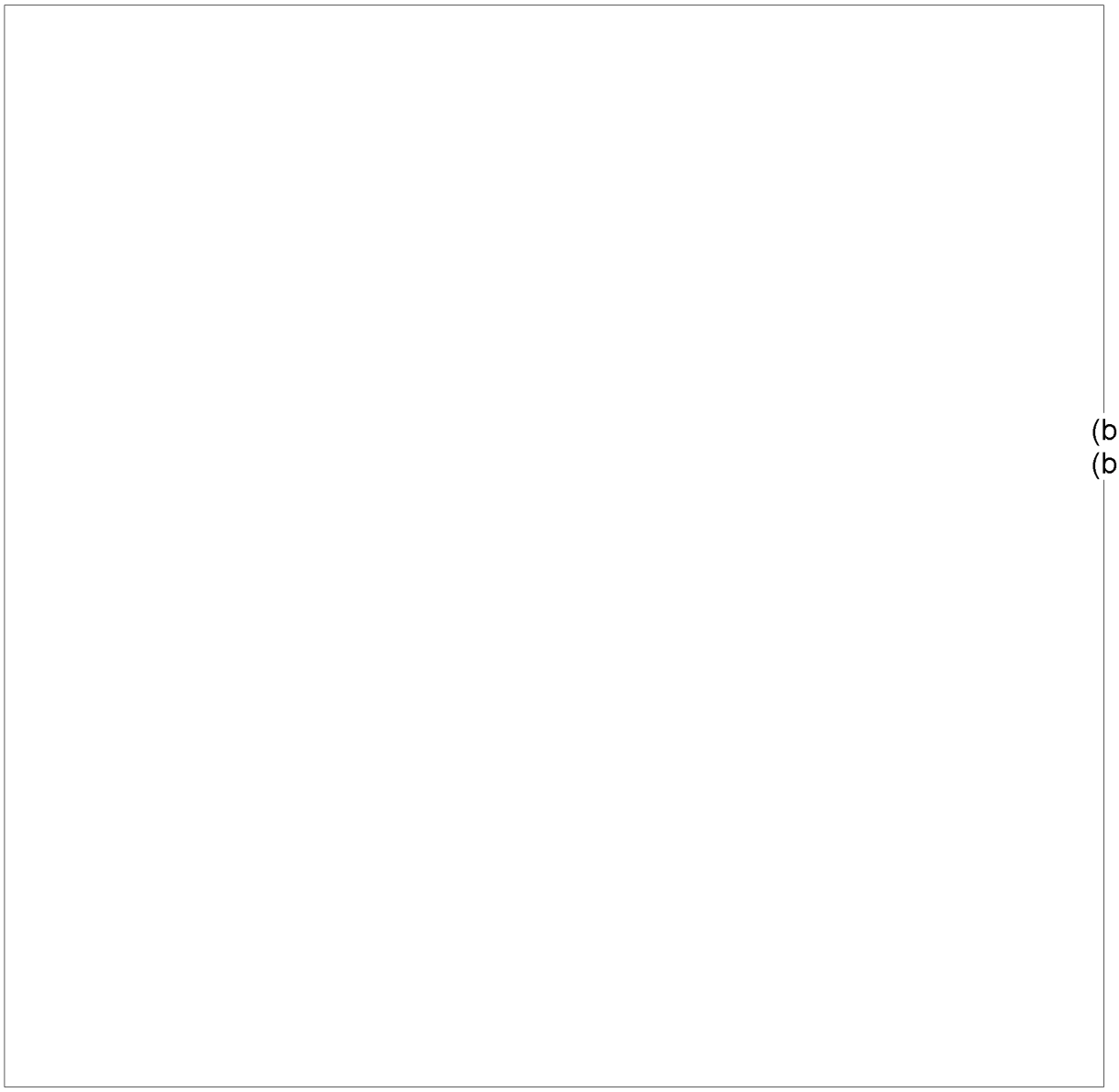


(b)(1)
(b)(3)

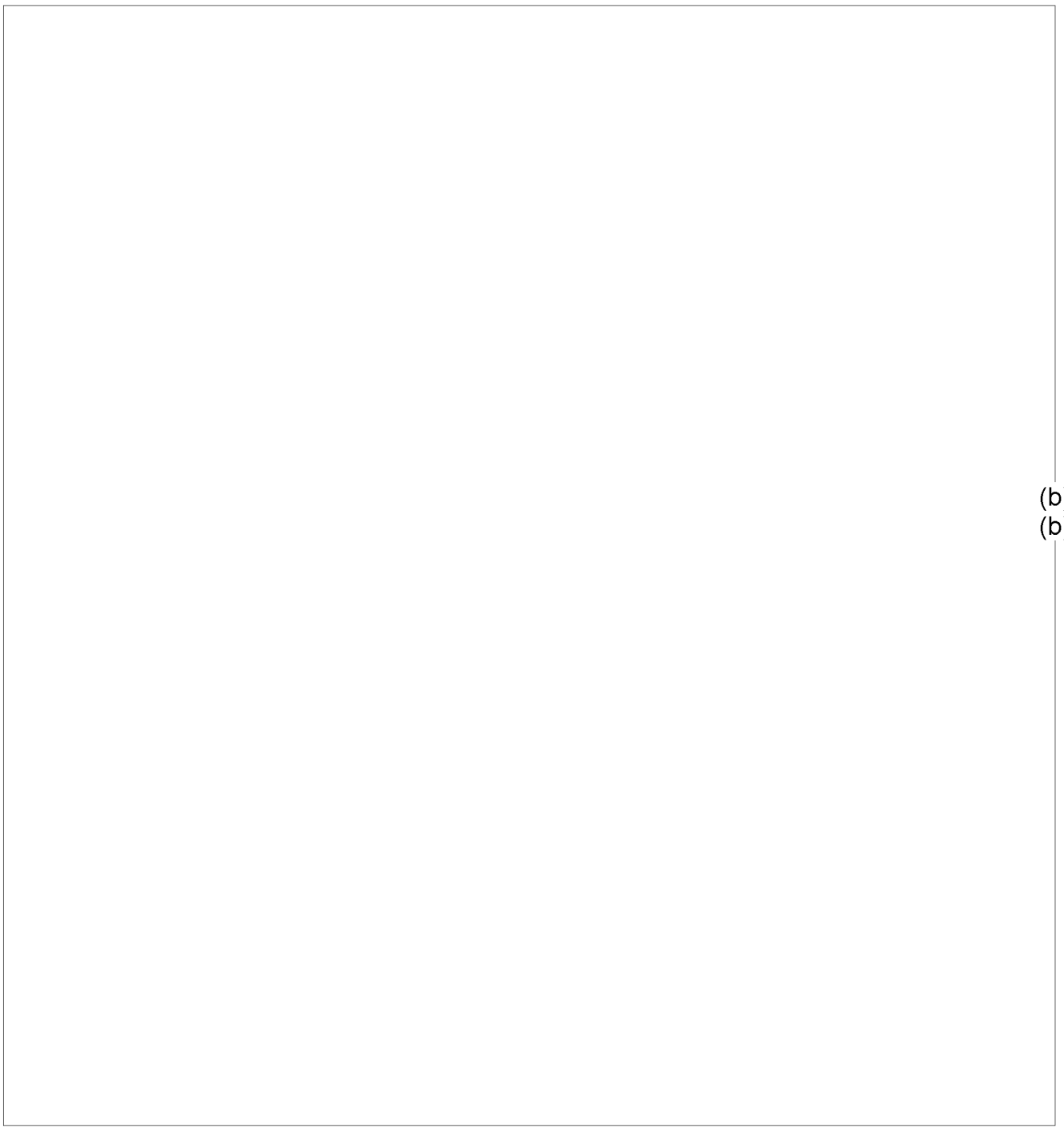
(b)(1)
(b)(3)



(b)(1)
(b)(3)

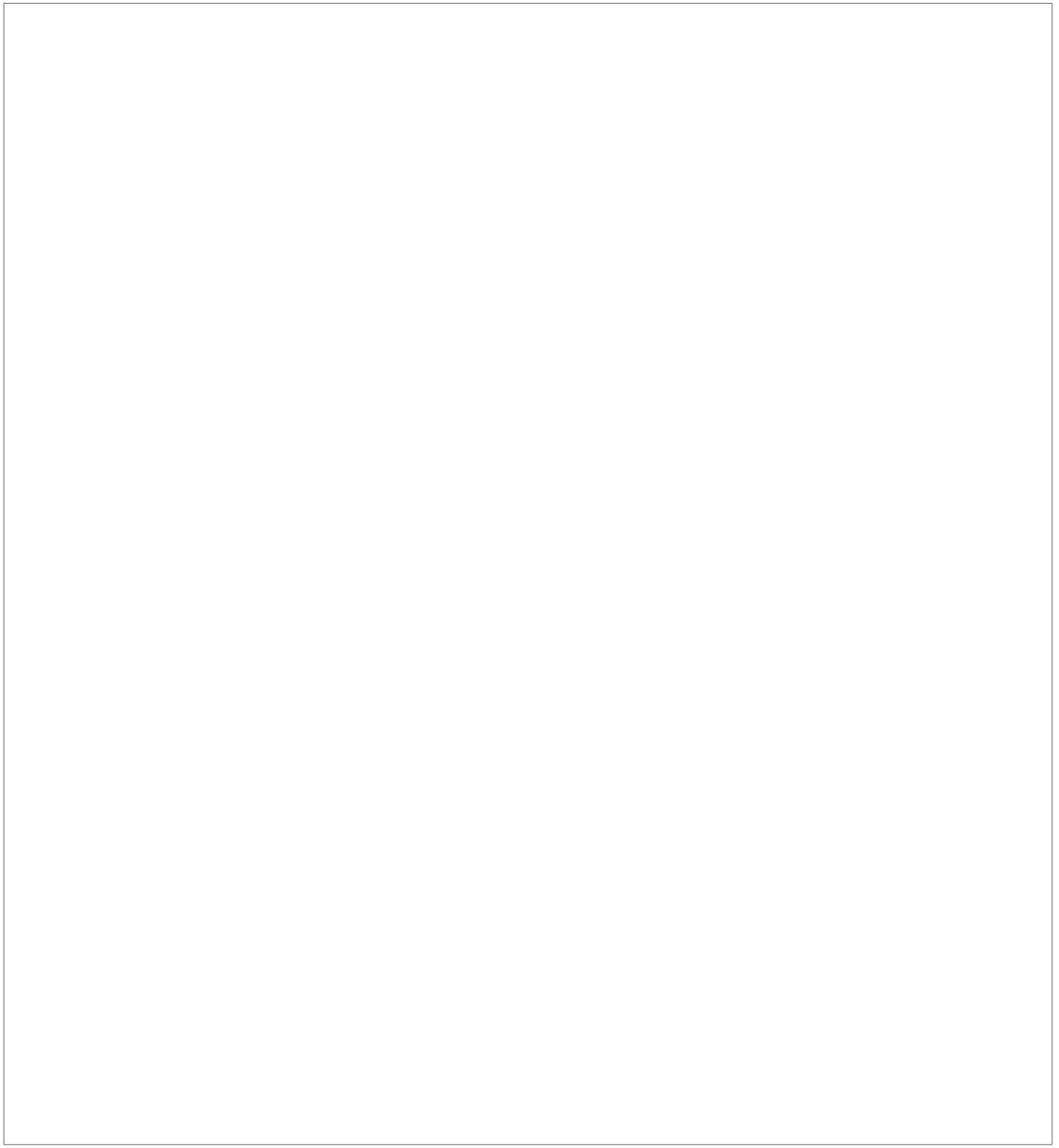


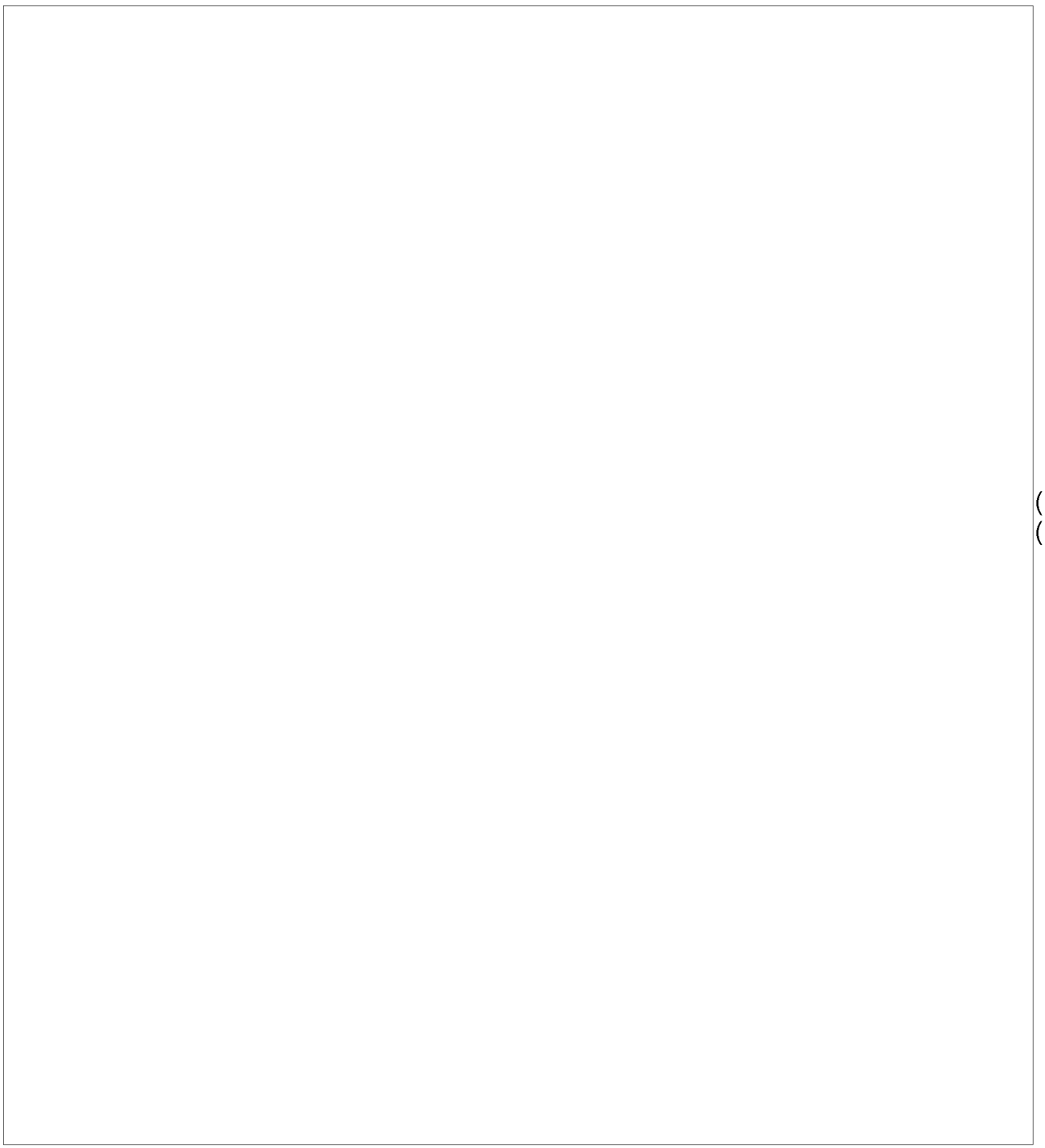
(b)(1)
(b)(3)



(b)(1)
(b)(3)

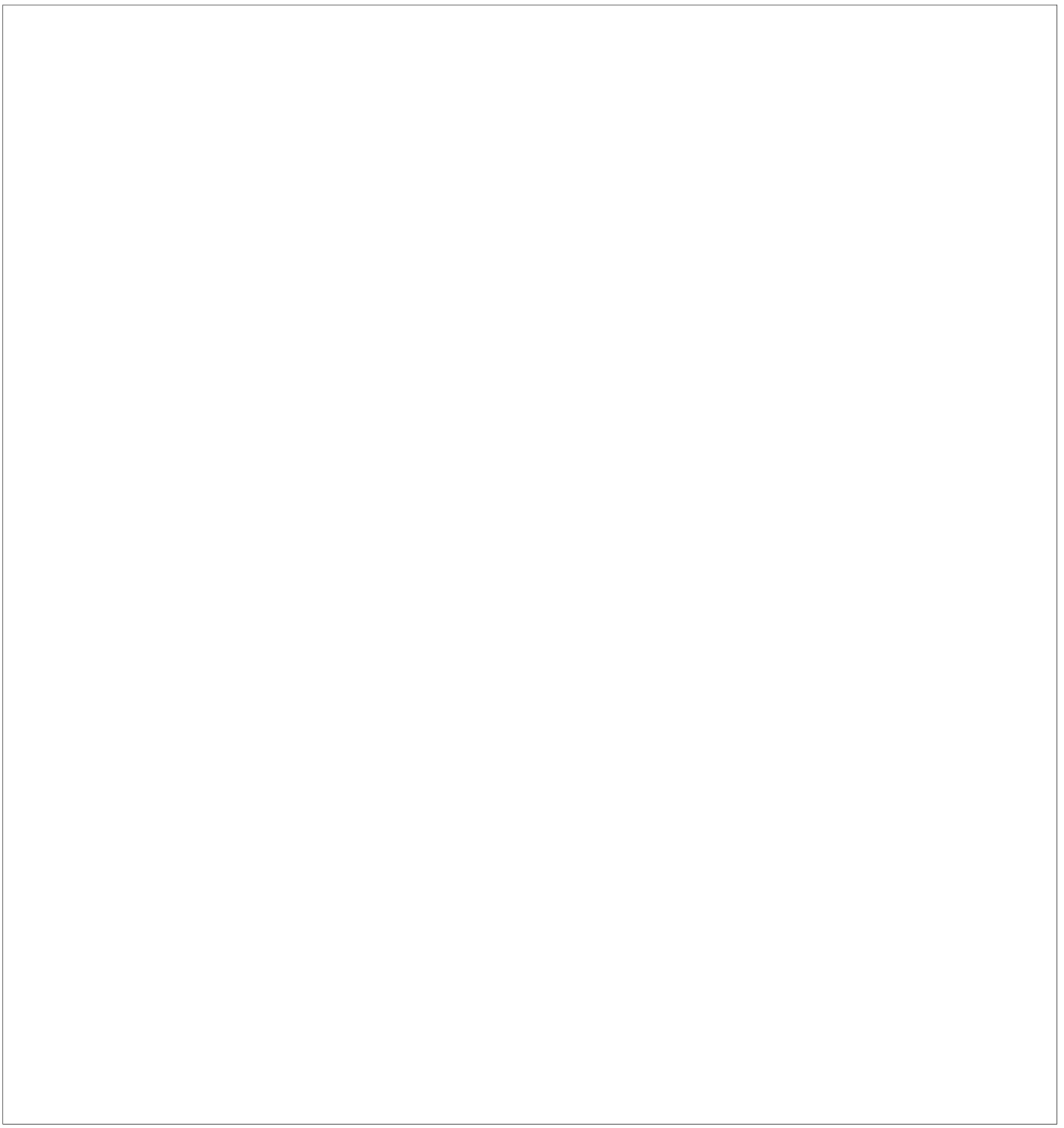
(b)(1)
(b)(3)





(b)(1)
(b)(3)

(b)(1)
(b)(3)



Approved for Release: 2017/11/15 C05144360

~~Top Secret~~

(b)(3)

~~Top Secret~~