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Just What Exactly is a Warhead?:

An Analysis of Russian/English Translations and Definitions

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Just What Exactly is a Warhead?: An Analysis of Russian/English Translations and Definitions

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Abstract

That there are significant definitional differences between languages is a statement of the obvious. It logically follows that definitional ambiguity occurs when translating a term from one language to another. The far-reaching implications of this fact, however, are not as widely recognized. One word that has been and will continue to be significant is "warhead." This analysis (1) examines the different translations and definitions of the word "warhead" in English and Russian; (2) discusses the usage of "warhead" in the context of arms control; and (3) explores the implications definitional differences have for future negotiations. It specifically utilizes treaty texts, as well as the Helsinki agreement text, to construct a contextual use of "warhead." It is concluded that if US policymakers are committed to including nuclear explosive devices in START III force reductions, negotiators must identify and use a more specific term than warhead or боеголовка (boyegolovka). Also included as an appendix are copies of the signed Helsinki agreement in both English and Russian.

Just What Exactly is a Warhead?:

An Analysis of Russian/English Translations and Definitions

Introduction

An important issue in international arms control negotiations is the precise and accurate translation of relevant terms. At most negotiating tables, certain words are assigned specific translations and meanings. However, outside negotiations, the implications of different translations are often overlooked. One word of special significance is "warhead." Although seemingly straightforward, its definition and usage is laden with assumptions. While shared assumptions are not consequential, differing assumptions can cause significant misunderstanding. The purpose of the following analysis is (1) to examine the different translations and definitions of the word "warhead" in English and Russian; (2) to discuss the usage of "warhead" in the context of arms control; and (3) to examine the implications definitional differences have for future negotiations.

Definitional Differences

That there are significant definitional differences between languages is a statement of the obvious. It logically follows that definitional ambiguity occurs when translating a term from one language to another. The far-reaching implications of this fact, however, are not as widely recognized. One word that has been and will continue to be significant is "warhead." The following paragraphs examine commonly used definitions and translations of "warhead" and put them into context of a previous arms control negotiation. At this point, only the INF treaty is referenced, but START I & II may be incorporated at a later date.¹

Before discussing Russian translations, it is important to specify the definition of "warhead" in English in order to establish the US frame of reference. *Webster's New Collegiate Dictionary* defines warhead as "the section of a missile containing the explosive, chemical, or incendiary charge."² Although this can be read as not *necessarily* including the explosive package,

¹ In the English version of START I, warheads are considered separate entities from the missile itself and distinct also from reentry vehicles. While it is possible to speculate as to the implications of the choice of words, it is impossible to draw solid conclusions without the Russian copy in hand.

² For completeness, a Department of Defense glossary was also consulted. The following definition does not deviate substantively from Webster's: "That part of a missile, projectile, torpedo, rocket, or other munition which contains either the nuclear or thermonuclear system, high explosive system, chemical, or biological agents or inert materials intended to inflict damage." p. 408-409.

the assumption that it does is made by both the general public and those more closely involved in military and strategic issues. In fact, most in the nuclear community would be even more specific in their definition and refer only to the explosive device itself.

When "warhead" is translated into Russian, the results are much less definitive. The most common translation is боеголовка (boyegolovka).³ A less common and weak translation of боеголовка (boyegolovka) is "reentry vehicle."⁴ *A Comparative Lexicon of US-Soviet Military Technical Terminology* echoes this translation and adds the Soviet⁵ definition: "Literally, the 'combat head' of a missile containing a single warhead."⁶ It adds that боеголовка (boyegolovka) is "an ambiguous word in ballistic missile terminology. . . This is similar to the common use of warhead to describe a warhead section, which actually contains the warhead(s), structural elements, and other components."⁷ While the meaning of the word is vague, it is frequently included in treaty language.

For the purposes of the INF treaty, боеголовка (boyegolovka) is translated as both "reentry vehicle"⁸ and "warhead."⁹ Боеголовка (boyegolovka) is also used in the Helsinki Agreement in reference to "transparency of strategic nuclear warhead inventories," "destruction of strategic nuclear warheads," and "removing their nuclear warheads" (боеголовка - boyegolovka).¹⁰ It should be readily apparent that at the very least, боеголовка (boyegolovka) is a term that can be interpreted in various ways.

Another Russian term for "warhead," and probably the closest to the US English speaker's default use, is боезаряд (boezaryad). This word is

³ (1) *Oxford Russian/English Dictionary*; (2) *Callahan's Russian-English Dictionary of Science and Technology*; *English/Russian Dictionary of Diplomacy*; *Russian/English Military Dictionary*.

⁴ Both translations are also given in *Arms Control: Reference Aid - 1987 INF Treaty Glossary*, p. 2.

⁵ I identify this as a Soviet definition because the referenced document was written during the Soviet period. The definitions and translations contained in this document should remain valid, even during the post-Soviet period.

⁶ *A Comparative Lexicon of US-Soviet Military Technical Terminology*, p. 32

⁷ *A Comparative Lexicon of US-Soviet Military Technical Terminology*, p. 32

⁸ *Arms Control: Reference Aid - 1987 INF Treaty Glossary*, p. 2. Treaty text: Procedures for Elimination at Elimination Facilities, no. 9 "The Parties agree that all United States and Soviet Intermediate-range and shorter-range missiles and their associated **reentry vehicles** shall be eliminated within an agreed overall period of elimination."

⁹ *Arms Control: Reference Aid - 1987 INF Treaty Glossary*, p. iii, 2. Treaty text: Art. VII, no. 5 "The maximum number of **warheads** an existing type of intermediate-range missile or short-range missile carries....."

¹⁰ "Joint Statement on Parameters on Future Reductions in Nuclear Forces," March 21, 1997

translated and defined in two different ways: (1) "weapon" (in the sense of 'nuclear weapon') – includes ballistic-missile and cruise-missile warheads, gravity bombs (Not to be translated as 'charge' in this context)¹¹; and (2) "warhead" – the nuclear, thermonuclear, conventional explosive or other charge within the warhead section or reentry vehicle of a missile or rocket.¹² Боезаряд (boyezaryad) does not appear in the INF text, but is utilized twice in the Helsinki Agreement. First, it appears in reference to lowering the aggregate levels of "strategic nuclear warheads" (стратегических ядерных боезарядов - strategicheskikh yadernoykh boyezaryadov) to 2,000-2,500 by December 31, 2007. The second utilization is in reference to promoting the "irreversibility of deep reductions including prevention of a rapid increase in the number of warheads" боезаряд (boyezaryad).¹³

As mentioned earlier, agreements are forged during negotiations as to the designated translations of certain terms. Difficulties in translation during the INF negotiations required the creation of a new term: ядерное зарядное устройство (yadernoye zaryadnoye ustroystvo), or "nuclear warhead device." This term refers specifically to the internal explosive components of the front section of the missile. Ядерное зарядное устройство (yadernoye zaryadnoye ustroystvo) seems to mimic боезаряд (boyezaryad) in meaning. However, due to previous agreements, боезаряд (boyezaryad) was either designated as a term not specific enough, or the translation could not be reassigned, requiring the use of new term.

A Russian word occasionally translated as "warhead," and which appears frequently in treaty language is головная часть (golovnaya chast'). It is translated variously as front section, warhead, nose section, reentry vehicle,¹⁴ post-boost vehicle and front-end (ABM interceptors).¹⁵ A *Comparative Lexicon* defines головная часть (golovnaya chast') as "the forward section of a missile in which its warhead is usually located. . . It may contain one or more reentry vehicles as well as systems for guidance and detonation."¹⁶ For the purposes of the INF treaty negotiations, головная часть (golovnaya chast') is strictly translated as "front section."¹⁷ Indeed, consensus seems to have converged around the "front section" translation.

¹¹ *Arms Control: Reference Aid – Glossary of Arms Control Terms*, p. 4. The *Russian/English Military Dictionary* defines boevoj zaryad as (1) warhead and (2) propellant charge. боезаряд (boyezaryad) is merely a combination of the two words.

¹² *A Comparative Lexicon of US-Soviet Military Technical Terminology*, p. 47

¹³ "Joint Statement on Parameters on Future Reductions in Nuclear Forces," March 21, 1997

¹⁴ *Callahan's Russian-English Dictionary of Science and Technology*, p. 774

¹⁵ *Arms Control: Reference Aid – 1987 INF Treaty Glossary*, p. iv, *Arms Control: Reference Aid – Glossary of Arms Control Terms*, p. 85-86, *Lexicon*, p. 100

¹⁶ *A Comparative Lexicon of US-Soviet Military Technical Terminology*, p. 100

¹⁷ *Arms Control: Reference Aid – 1987 INF Treaty Glossary*, p. iii

It should be noted here that there can be significant overlap between боеголовка (boyegolovka) and головная часть (golovnaya chast'). A *Comparative Lexicon* comments that originally боеголовка (boyegolovka) "was synonymous with головная часть (golovnaya chast'), referring to the payload of a ballistic missile. However, as additional damage-producing components were included in the payload, these components within the головная часть (golovnaya chast') are also referred to as боеголовка (boyegolovka)."¹⁸ This not only reinforces the ambiguity of "warhead" translations in general, but specifically of боеголовка (boyegolovka).

Dismantlement

Although somewhat separate from definitional and translation issues, dismantlement options regarding arms control are directly affected by the meanings attached to the terms of the treaty. For example, the INF treaty protocols indicate that the front section (головная часть - golovnaya chast') of the missile and reentry vehicles (боеголовка - boyegolovka) were to be destroyed, while the nuclear warhead device (ядерное зарядное устройство - yadernoye zaryadnoye ustroystvo) and guidance elements were permitted to be removed prior to elimination. Therefore, it can be argued that warheads (боеголовка - boyegolovka) were destroyed, while in fact the explosive elements (ядерное зарядное устройство - yadernoye zaryadnoye ustroystvo) were not.

The precedent set by INF negotiators relates directly to the language of the Helsinki Agreement. While the two presidents agreed to "destruction of strategic nuclear warheads," the translation of "warheads" is the Russian word (боеголовка - boyegolovka), the same as utilized in INF treaty language. It is therefore not specified, as should be obvious from the above discussion, whether destruction will include actual nuclear explosive devices or not. Unfortunately, this fact might not be clearly recognized. In a Helsinki press briefing, National Security Advisor Sandy Berger stated that "for the first time the parties will be negotiating on actual warhead destruction as opposed to simply systems destruction."¹⁹ While NSA Berger is technically correct in stating that warheads are the focus of negotiation, his emphasis on "actual warhead destruction" seems to imply inclusion of the nuclear explosive device, which is simply not explicit in the agreement language. There are, in fact, many different methods of destruction, and as of yet, none have included the nuclear explosive device.

¹⁸ *A Comparative Lexicon of US-Soviet Military Technical Terminology*, p.32

¹⁹ Press Briefing by Secretary of State Madeleine Albright, National Security Advisor Sandy Berger, and Deputy Secretary of the Treasury Larry Summers. Helsinki, Finland, March 21, 1997.

Implications

Definitionally, there are significant implications of this discussion for the Joint Parameters agreement made in Helsinki. First, according to the Russian translation, the two governments indeed agree to decrease the aggregate number of warheads (боезаряд - boyezaryad).²⁰ Second, they agree that the "prevention of a rapid increase in the number of warheads" (боезаряд - boyezaryad) is an example of a method to "promote the irreversibility of deep reductions." Irreversibility implies permanence; therefore, common sense would require destruction or dismantlement of nuclear explosive devices. At the same time, however, the parameters set here only agree to "promote" irreversibility, thereby not demanding it.

When referencing the destruction and transparency of warheads, the Russian translation in the Helsinki Agreement refrains from the specific reference to the explosive package and reverts to the more generic боеголовка (boyegolovka). As such, it is a matter for negotiation how the number of warheads (боезаряд - boyezaryad) is decreased -- destruction may not necessarily include these parts. While a definitive conclusion can not be reached as to the specific meaning the Russian negotiators attached to боеголовка (boyegolovka), it is definitely significant that the negotiators purposely used a different term when talking about destruction and transparency than that used to refer to lowering aggregate levels. It is therefore appropriate for Berger to argue that *negotiation* will focus on destruction of "actual warheads,"²¹ but in order for that destruction to physically occur, a more specific term than боеголовка (boyegolovka) must be used.

In sum, the negotiators charged with maintaining the parameters set by the Helsinki Agreement must discuss decreasing the number of nuclear explosive devices possessed by both Russia and the United States. It is not required by the agreement language, however, to destroy the explosive packages or to be transparent in decreasing them. In fact, if "aggregate" refers only to deployed warheads, it may be enough just to take them out of service, although this does not promote irreversibility. Negotiators can be flexible in the manner in which they set above to decrease numbers. As in the INF treaty, they may remove the nuclear warhead devices (ядерное зарядное устройство - yadernoye zaryadnoye ustroystvo) and destroy the front section (головная часть - golovnaya chast'), including the reentry vehicles

²⁰ It is not clear whether "aggregate" refers to total numbers of warheads or deployed numbers.

²¹ Press Briefing by Secretary of State Madeleine Albright, National Security Advisor Sandy Berger, and Deputy Secretary of the Treasury Larry Summers. Helsinki, Finland, March 21, 1997.

(боеголовка - boyegolovka). This would technically fulfill the requirements of the agreement.

Conclusion

Within the English language the word "warhead" is somewhat ambiguous and laden with assumptions as to its meaning. The Russian is even more so, providing a variety of words that all translate as "warhead." This difference is in no place more apparent than the recent Helsinki agreement, where the English translation refers only to "warhead," while the Russian utilizes two separate terms. If US policymakers are committed to including nuclear explosive devices in START III force reductions, negotiators must identify and use a more specific term than warhead or боеголовка (boyegolovka).

While translation and definitional difficulties will always exist and provide challenges for negotiators, if the implications of these differences are appreciated, greater flexibility can be an unexpected and at times, undesired outgrowth. Specifically in reference to the term "warhead," awareness of semantic differences is vital, both by negotiators and the heads of state who must ultimately agree to treaty language that preserves the spirit of the negotiated agreement.

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СОВМЕСТНОЕ ЗАЯВЛЕНИЕ О ПАРАМЕТРАХ БУДУЩИХ СОКРАЩЕНИЙ ЯДЕРНЫХ ВООРУЖЕНИЙ

Президенты Б.Н.Ельцин и Б.Клинтон подчеркивают, что с окончанием холодной войны был достигнут значительный прогресс в отношении укрепления стратегической стабильности и ядерной безопасности. Как Россия, так и Соединенные Штаты значительно сокращают свои ядерные силы. Предприняты важные шаги по ненацеливанию стратегических ракет. Договор СНВ-1 вступил в силу, и его выполнение осуществляется с опережением графика. Из Белоруссии, Казахстана и Украины выведено ядерное оружие. Договор о нераспространении ядерного оружия был бессрочно продлен 11 мая 1995 года, и Договор о всеобъемлющем запрещении ядерных испытаний был подписан как Россией, так и Соединенными Штатами 24 сентября 1996 года.

Предпринимая новый исторический шаг, направленный на укрепление международного мира и безопасности, Президент Б.Н.Ельцин и Президент Б.Клинтон настоящим вновь подтверждают свою приверженность осуществлению дальнейших конкретных шагов по уменьшению ядерной опасности и укреплению стратегической стабильности и ядерной безопасности. Президенты достигли понимания относительно дальнейших сокращений и ограничений стратегических наступательных вооружений, которые на рубеже веков значительно уменьшат роль ядерного оружия и ту опасность, которую оно представляет. Признавая основополагающее значение Договора по ПРО для достижения этих целей, Президенты в отдельном Совместном заявлении дали поручение относительно разграничения между системами стратегической и нестратегической ПРО, которое позволит развернуть эффективную нестратегическую ПРО и предотвратить обход Договора по ПРО.

Учитывая изложенное, Президент Б.Н.Ельцин и Президент Б.Клинтон достигли следующих взаимопониманий.

После вступления в силу Договора СНВ-2 Россия и Соединенные Штаты незамедлительно приступят к переговорам по соглашению СНВ-3, которое будет включать, среди прочего, следующие базовые элементы:

- Установление к 31 декабря 2007 года для каждой из сторон пониженных суммарных уровней в 2000-2500 стратегических ядерных боезарядов.

- Меры, касающиеся транспарентности имеющихся в наличии стратегических ядерных боеголовок и уничтожения стратегических ядерных боеголовок, а также любые другие совместно согласованные технические и организационные меры с тем, чтобы способствовать необратимости глубоких сокращений, включая предотвращение быстрого наращивания количества боезарядов.

- Решение вопросов, связанных с целью придания существующим договорам о СНВ бессрочного характера.

- Деактивация всех стратегических носителей ядерного оружия, которые будут ликвидированы по Договору СНВ-2, к 31 декабря 2005 года путем отстыковки их ядерных боеголовок или принятия других совместно согласованных шагов. Соединенные Штаты оказывают содействие осуществлению ранней деактивации через Программу Нанна-Лугара.

Президенты достигли понимания о том, что предельный срок ликвидации стратегических носителей ядерного оружия по Договору СНВ-2 будет продлен до 31 декабря 2007 года. Стороны согласуют конкретные формулировки, которые будут представлены в Государственную Думу и, после одобрения Государственной Думой Договора СНВ-2, - в Сенат Соединенных Штатов.

В этом контексте Президенты подчеркивают важность скорой ратификации Договора СНВ-2 Государственной Думой Российской Федерации.

Президенты согласились также о том, что в контексте переговоров по СНВ-3 их эксперты рассмотрят в качестве отдельных вопросов возможные меры, касающиеся ядерных крылатых ракет морского базирования большой дальности и

тактических ядерных средств, включая соответствующие меры укрепления доверия и транспарентности.

Принимая во внимание вышеизложенные понимания и учитывая их Совместное заявление от 10 мая 1995 года, Президенты согласились, что стороны изучат также вопросы, относящиеся к транспарентности применительно к ядерным материалам.

ЗА
РОССИЙСКУЮ ФЕДЕРАЦИЮ

ЗА
СОЕДИНЕННЫЕ ШТАТЫ
АМЕРИКИ

Хельсинки, 21 марта 1997 года

**JOINT STATEMENT ON PARAMETERS ON FUTURE REDUCTIONS
IN NUCLEAR FORCES**

Presidents Clinton and Yeltsin underscore that, with the end of the Cold War, major progress has been achieved with regard to strengthening strategic stability and nuclear security. Both the United States and Russia are significantly reducing their nuclear forces. Important steps have been taken to detarget strategic missiles. The START I Treaty has entered into force, and its implementation is ahead of schedule. Belarus, Kazakstan and Ukraine are nuclear-weapon free. The Nuclear Non-Proliferation Treaty was indefinitely extended on May 11, 1995 and the Comprehensive Nuclear Test Ban Treaty was signed by both the United States and Russia on September 24, 1996.

In another historic step to promote international peace and security, President Clinton and President Yeltsin hereby reaffirm their commitment to take further concrete steps to reduce the nuclear danger and strengthen strategic stability and nuclear security. The Presidents have reached an understanding on further reductions in and limitations on strategic offensive arms that will substantially reduce the roles and risks of nuclear weapons as we move forward into the next century. Recognizing the fundamental significance of the ABM Treaty for these objectives, the Presidents have, in a separate joint statement, given instructions on demarcation between ABM systems and theater missile defense systems, which will allow for deployment of effective theater missile defenses and prevent circumvention of the ABM Treaty.

With the foregoing in mind, President Clinton and President Yeltsin have reached the following understandings.

Once START II enters into force, the United States and Russia will immediately begin negotiations on a START III agreement, which will include, among other things, the following basic components:

- Establishment, by December 31, 2007, of lower aggregate levels of 2,000-2,500 strategic nuclear warheads for each of the parties.
- Measures relating to the transparency of strategic nuclear warhead inventories and the destruction of strategic nuclear warheads and any other jointly agreed technical and

organizational measures, to promote the irreversibility of deep reductions including prevention of a rapid increase in the number of warheads.

- Resolving issues related to the goal of making the current START treaties unlimited in duration.
- Placement in a deactivated status of all strategic nuclear delivery vehicles which will be eliminated under START II by December 31, 2003, by removing their nuclear warheads or taking other jointly agreed steps. The United States is providing assistance through the Nunn-Lugar program to facilitate early deactivation.

The Presidents have reached an understanding that the deadline for the elimination of strategic nuclear delivery vehicles under the START II Treaty will be extended to December 31, 2007. The sides will agree on specific language to be submitted to the Duma and, following Duma approval of START II, to be submitted to the United States Senate.

In this context, the Presidents underscore the importance of prompt ratification of the START II Treaty by the State Duma of the Russian Federation.

The Presidents also agreed that in the context of START III negotiations their experts will explore, as separate issues, possible measures relating to nuclear long-range sea-launched cruise missiles and tactical nuclear systems, to include appropriate confidence building and transparency measures.

Taking into account all the understandings outlined above, and recalling their statement of May 10, 1995, the Presidents agreed the sides will also consider the issues related to transparency in nuclear materials.

FOR THE UNITED STATES
OF AMERICA:

FOR THE RUSSIAN FEDERATION:

Helsinki

March 21, 1997

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