MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

**NATIONAL TECHNICAL UNIVERSITY
"KHARKIV POLYTECHNICAL INSTITUTE"**

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APPROVED
NTU "KhPI" Rector
_____ **Ye.I. Sokol**
«____» _____ **2019**

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**EDUCATIONAL AND PROFESSIONAL PROGRAM
APPLIED AND COMPUTATIONAL LINGUISTICS**

**The first level of higher education
in specialty 035 Philology
The branch of knowledge 03 The Humanities
Qualification: Bachelor of Philology**

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APPROVED BY
THE ACADEMIC COUNCIL OF NTU "KHPI"
Head of the Academic Council
_____ **L.L. Tovazhniansky**
Minutes No. _____ of
«____» _____**2019 р.**

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Kharkiv 2019

APPROVAL FORM
of EDUCATIONAL AND PROFESSIONAL PROGRAM

Level of higher education	First (Bachelor)
Field of Knowledge	03 The Humanities
Specialty	035 Philology
Specialization	"Applied Linguistics"
Qualification	Bachelor of Philology

APPROVED by Scientific-methodical commission on the specialty "Philology" Head of Commission _____ N.V. Sharonova « » 2019	RECOMMENDED Methodical Council of NTU "KhPI" Deputy Chairman of the methodical council _____ R.P. Mygushchenko « » 2019
AGREED Head of the Department of Intellectual computer systems _____ N.V. Sharonova « » 2019	AGREED Dean of the Faculty of Social and Humanitarian Technologies _____ A.V. Kipensky « » 2019

APPROVED AND PROVIDED

By order of the rector of the National Technical University "Kharkiv Polytechnic Institute" of
"_____" _____ 20___. № _____.

PREFACE

Introduced by the project team of the Department of Intelligent Computer Systems of Social and Humanitarian Technologies Faculty of the National Technical University "Kharkiv Polytechnic Institute" consisting of:

1. Sharonova Natalya, Doctor of Technical Sciences, Professor, Head of Intellectual Computer Systems Department NTU "KhPI", chairman of the Scientific and Methodological Commission on Philology; (guarantor of the educational program);

2. Kupriianov Yevgen, Candidate of Philology, Associate Professor of the Department of Intellectual Computer Systems of NTU "KhPI", Project Group Leader;

3. Nina Khayrova, Doctor of Technical Sciences, Professor, Professor of the Department of Intelligent Computer Systems;

4. Tetyana Bratus, candidate of Philology, Associate Professor of the department of Intelligent Computer Systems of NTU "KhPI".

Reviewers:

1. Ryzhkova V.V., Head of Applied Linguistics Department, Zhukovsky NAU, candidate of Philology, professor;
2. Levchenko O.P., Head of Applied Linguistics Department of Lviv Polytectics, Doctor of Philology, Professor.

EDUCATIONAL AND PROFESSIONAL SPECIALIZED PROGRAM PROFILE

FOR SPECIALTY 035 "PHILOLOGY"

WITH SPECIALIZATION "APPLIED LINGUISTICS"

1 – GENERAL INFORMATION	
Full name of higher education institution and structural unit	National Technical University "Kharkiv Polytechnic Institute" Social and Humanitarian Technologies Faculty Department of Intelligent Computer Systems
Higher education degree and the name of the qualification in the original language	Bachelor of Philology
The official name of the educational program	Educational and professional specialized program "Applied and Computational Linguistics"
Type of diploma and volume of educational program	Bachelor's degree unit, unitary, 240 ECTS credits, 3 years 10 months
Availability of accreditation	Accreditation committee of Ukraine, Ukraine. Certificate of accreditation of specialty 03 the Humanities 035 Philology: УД Series №21001147 of 18 January 2018
Cycle / level of the program	FQ-EHEA – first cycle, QF LLL – 6 level, NQF of Ukraine – level 7
Prerequisites	Availability of full secondary education
Teaching Languages	Ukrainian / English
The duration of the educational program	According to the validity period of the certificate of accreditation
Internet address of permanent description of the educational program	http://web.kpi.kharkov.ua/iks/uk/
2 – The purpose of the educational program	

To provide training of specialists in the field of applied and computer linguistics capable of formulating, generalizing and solving practical tasks in the field of linguistics, translation studies and information technologies, able to develop mathematical models, algorithms, create and operate the relevant software with the use of fundamental and special methods of linguistic research and computer science.

3 - Characteristics of the educational program

Subject area (field of knowledge, specialty, specialization)	Field of Knowledge: the Humanities Specialty: Philology Specialization: Applied Linguistics
Orientation of the educational program	Educational-professional program with the focus on mastering the methods of linguistic research of natural language using modern information technologies. Professional orientation - translation of scientific and technical literature; content analysis of texts; development of knowledge bases for expert systems; creation of machine resources of natural languages; development of electronic dictionaries and terminology databases; automated processing of natural language.
The main focus of the educational program and specialization	Special education in the field of the Humanities in the specialty "Philology" with specialization in the subject field of applied linguistics. Key words: Applied and Computer Linguistics, Automated Processing of Natural Language Units, Structural Linguistics, Text Processing Technologies, Mathematical Modeling in Linguistics, Mathematical Foundations of Linguistics, Automated Translation.
Specific features of the program	The program focuses on the development of professionally oriented knowledge and skills, namely the study of three foreign languages, enhanced training in Information Technology, followed by the use of acquired skills and abilities in IT companies and translation agencies during the Graduate Internship.

4 - Eligibility of graduates
to employment and further training

Eligibility of graduates to employment	The Bachelor of Philology can translate scientific and technical and business literature, work in the translation agency, organizations of industrialists and entrepreneurs,

	professional and social organizations, print agencies, and engineering and technical staff in the field of communication and information. Professional opportunities for graduates (according to the Classifier of Professions ДК 003:2010).
	A specialist may hold primary positions:
	2444 - Professionals in the field of Philology, linguistics and translation;
	2444.2 - Translators and interpreters; philologists, linguists
	20604 - guide-interpreter;
	24316 - translator;
	24325 - translator of scientific and technical literature;
	24559 - translator-interpreter;
	24595 - referent.
	A specialist is able to perform the specified professional work according to ДК 003:2010
	Professionals in the field of archival affairs, museology, library affairs, in the field of archives, storage of museum and library funds.
	2431.2 archivists and custodians of museums and libraries;
	2433 professionals in the field of information and information analysis;
	2433.2 professionals in the field of information and information analytics;
	4112 computer operators for text processing and similar professions;
	4113 data acquisition operators;
	23464 typist working with foreign language texts;
	24875 computer type setter;
	24875 data entry operator
	1448.1 travel agencies activity managers;

	1473 information service managers;
	11661 manager's assistant;
	24690 secretary to the manager;
	15293 information handler;
	20062 administrator
Further training	The opportunity of upgrading the qualification to the highest academic degree (master degree) according to the relevant programs of educational and professional or educational and scientific training. Possibility of postgraduate study to obtain professional qualifications in accordance with the relevant professional standards.
5 – Teaching and Knowledge Assessment	
Teaching and Studying	Lectures, laboratory and practical classes, scientific and practical workshops, realization of educational and real projects (project-oriented training), problem-oriented and in-service and student-centered training, independent work and self-study, practice, preparation of graduate projects.
Assessment	Formative and summative assessment of knowledge (surveys, tests and individual tasks etc.), credits and exams (oral and written), defense of in-course and undergraduate projects with the presentation, public defense of graduate project.
6 – Program competencies	
Integral competence	Ability to solve complex specialized problems and practical problems of applied linguistics in professional activity or in the process of learning, which involves the use of methods of linguistic analysis, algorithms, information technology and specialized software and characterized by complexity and uncertainty of the conditions.
General competencies	GC-1. To have the basics of historical thinking, to have an idea of history as a science, its place in the system of the Humanities, to know the historical sources. To understand the driving forces and regularities of the historical process, the main stages in the history of Ukraine and their chronology, be able to analyze historical national

events and trends, to participate responsibly in the political life of society. To understand the essence of culture, its place and role in the life of man and society, to have an understanding of the forms of culture, their origin and development, the creation of cultural norms and values, the mechanisms of preservation and transfer them as a socio-cultural experience, to know the main achievements in various areas of cultural practice.

GC-2. Ability to written and oral communication in Ukrainian, the ability to speak Ukrainian as a means of business communication, the ability to build logically correct, reasoned and clear oral and written language.

GC-3. To be knowledgeable about the unity of all ecological systems of the biosphere, methods of detecting changes in environmental indicators under the influence of human activity.

GC-4. Ability to exercise citizens' rights and responsibilities as members of society, to realize the values of civil (democratic) society and the need for its sustainable development, the rule of law, human and civil rights and freedoms in Ukraine.

GC-5. To have the understanding of the peculiarity of philosophy, its place in culture, scientific, philosophical and religious worldviews, the essence, purpose and meaning of human life, the forms and methods of scientific knowledge.

GC-6. Ability to model the mechanisms of adaptation to the external and internal conditions of changing life.

GC-7. The ability to understand vocabulary as a system, to have a dialectical look at the meaning, to recognize close connection of vocabulary with grammar, to work with different types of dictionaries.

Professional competences of the specialty	PC-1. Ability to acquire the knowledge of the natural language as a holistic, systemic multi-level phenomenon, the conceptual apparatus of applied linguistics and its place among other linguistic disciplines. PC-2. Ability to analyze and interpret foreign fiction according to historical periods, to understand the nature of different genres, writings, common and original features in

	the changes of cultural traditions and literary styles.
	PC-3. Ability to written and oral communication in foreign languages, observing all grammatical and lexical norms in situations of professnional communication.
	PC-4. Ability to understand the role of science in the development of civilization and interaction of science and technology.
	PC-5. Ability to translate from foreign languages into the native language and from the native language into foreign languages political, socio-economic, popular science, technical and business texts and other materials, as well as official business documents.
	PC-6. Ability to master the basics of human interaction with the technosphere, identify and study the risks of the reliability of the system "Man - the environment".
Professional competence of specialization	PCS-1. The ability to diachronic comprehension and synchronous analysis of language phenomena in order to understand the mechanisms of functioning and trends in the development of languages.
	PCS-2. Ability to implement typical and modern mathematical tools for constructing mathematical models of natural languages and linguistic algorithms and technologies.
	PCS-3. Ability to independently design, encode, debug, test Java programs with the use of tools.
	PCS-4. Ability to use the basic techniques of solving tasks of processing text and numeric information.
	PCS-5. Ability to speak fluently modern Ukrainian, English languages in their literary form, to know the terminology of linguistic semantics, to have the skills of independent study of the semantic system of language and its units. To possess the skills of analysis and synthesis of scientific research results using modern methods.
	PCS-6. Ability to use statistical methods in the study of linguistic units.
	PCS-7. Ability to model the subject area, to develop the components of software complexes and databases and

	manage them, to use modern tools and programming technologies.
Professional competencies in the optional part 01 "Applied and Computer Linguistics"	PCS1-1. Ability to form the knowledge about theoretical statements that make up the theoretical basis of lexicology and its main terms, the ability to analyze lexical units, their origin and semantic structure, skills to analyze the differences and similarities in lexical systems of English and Ukrainian languages, which are necessary for sufficiently free and normatively correct translation into native language.

PCS1-2. Aptitude for object-focused thinking, knowledge of object-oriented programming languages and the ability to apply this approach while designing software systems.

PCS1-3. Ability to use methods of probability theory and mathematical statistics necessary for a specialist in the field of applied and computer linguistics.

PCS1-4. Ability to form a set of views on the language and methods of its study as a sign system containing clearly distinguished structural elements and the intention of a strict, formal description of the language, the ability to master the structural methods and ways of analysis of language phenomena of different levels.

PCS1-5. Ability to use the basic knowledge of mathematical formalities for modeling linguistic relationships, in particular the theory of intelligence, algorithms and logical-linguistic calculus.

PCS1-6. Ability to use special software translation tools correctly.

PCS1-7. Ability to use software development English terminology in communicative situations that arise at all stages of creating a software product.

PCS1-8. Ability to develop the model and structure of the Internet server using distributed applications technologies, to create static and dynamic web pages using JavaScript and place the created documents on the Internet.

PCS1-9. Ability to form the skills in phonetic and graphic stylistics, functional stylistics, stylistic lexicology etc., to be aware of the stylistic segregation of the |

	vocabulary, stylistic grammar, stylistic semasiology, literary discourse, stylistic resources of phraseology, morphology and syntax.
	PCS1-10. Ability to form the knowledge of grammatical competences, skills in analyzing grammatical structures, as well as analyzing the differences and similarities in grammar systems of English and Ukrainian languages.

7 – Program results of training

Program Results of General Training	GTR-1. To know the basics of historical thinking, have an idea about the sources of historical knowledge and ways of working with it; know the conditions of personality formation, his freedom, responsibility for preserving life, nature, culture, moral duties of a person in relation to others and himself, spiritual values, their importance in creativity and everyday life.
	GTR -2. To have the skills and abilities of language behavior in everyday and professional communication.
	GTR -3. To know the legal framework for environmental protection; be able to carry out instrumental measurements of numerical values of normalized indicators of environmental conditions and the state of working environment.
	GTR -4. To acquire the skills for building a legal position on various issues of application of law and its legal argument.
	GTR-5. To know the scientific, philosophical and religious worldviews, the essence and meaning of human life; have an idea about the peculiarity of philosophy.
	GTR-6. To be able to work on intellectual, cultural, moral and professional self-development and self-improvement, the culture of social relations, rethink critically personal social experience.
	GTR-7. To know the principles of compiling dictionaries, be able to handle information from lexicographical sources; have skills in working with computer, multimedia lexicographic and encyclopedic sources.

Program results of specialty training	STR-1. To correlate the conceptual apparatus of applied linguistics with real facts and phenomena of professional activity. STR-2. To understand the literature of different countries as a system of potential and actual values, its content and significance in the modern world literature; know the main stages of its historical development, methods for literary research and conduct their comparative analysis. STR-3. To be able to write fluently and correctly in foreign languages, following all the grammatical and lexical norms in situations of professional communication. STR-4. To know the structure, forms and methods of scientific knowledge and their evolution; to understand the value of scientific rationality and its historical types. STR-5. To know and be able to use a system of methods and techniques for rendering lexical and grammatical difficulties based on understanding the structure of the English and Ukrainian languages, their differences and similarities, and contrastive analysis of the Ukrainian and English languages. STR-6. To know the legislative and regulatory framework of the state regarding the basics of occupational safety and health as well as international standards in this area.
Program results of specialization training	STR1-1. To be able to identify and analyze units of different levels of the language system in the unity of their content, form and functions. STR1-2. To know the basic concepts of theories of sets, relations and algebraic structures, Boolean functions and transformations, basic concepts of mathematical logic and graph theory, methods for solving linguistic issues using the theory of intelligence. STR1-3. To implement the basic conceptions and principles of object-oriented programming (OOP) in Java. STR1-4. To know the basic techniques for solving problems of text and numerical information processing. STR1-5. To know the basic propositions and scientific

	conceptions of linguistic semantics, principles and methods of semantic analysis; have an idea about the history, current state and prospects for the development of linguistic semantics. STR1-6. To know the basic methods of combinatorics, probability theory, mathematical statistics, information theory. STR1-7. To know the databases, data managers, methods and stages of their design.
Program results of training in optional part 01	STR2-1. Knowledge of the main theories of lexical meaning; paradigmatic interconnections of lexis (synonymy, antonymy, hyperhyponymy, lexical-semantic fields); ways of enriching vocabulary (word formation, change of lexical meaning, borrowing, phraseological units formation). STR2-1. Knowledge of the basic principles of object-oriented programming and ability to design an algorithm for solving a task, to program the selected algorithm, to set up and test the program in java language, in Eclipse and NetBeans. STR2-3. Knowledge of the basic methods of probability theory and mathematical statistics required by a specialist in applied and computer linguistics. STR2-4. Knowledge of the basic directions of modern structural linguistics development; ability to use structural methods correctly, to research the structure of speech phenomena. STR2-5. Knowledge of the basic concepts of automatic text processing, types of knowledge representation models, their advantages and disadvantages; stages of morphological, syntactic and semantic analysis, quantitative approaches to text processing. STR2-6. Ability to use the knowledge connected with the use of programs for computer texts translation; to form a knowledge system about understanding of information obtained by using a computer; to use computer translation programs efficiently. STR2-7. Master the terminology of software programming, ability to convey the specifics of texts of

	this nature from English into Ukrainian, to use it in communicative situations of professional communication.
	STR2-8. Knowledge of the principles of constructing JavaScript functions, peculiarities of design and implementation of software for WWW.
	STR2-9. Knowledge of the basic concepts and categories of stylistics; main stylistic means of imagery (metaphors and patterns); contrastive signs of the linguistic units of all subsystems of the studied linguistic pair in the micro- and macro-stylistic aspects; peculiarities of functioning of the units of the studied linguistic pair in various functional styles.
	STR2-10. Ability to define and analyze grammatical phenomena, to determine isomorphic and allomorphic features of the grammatical categories of English and Ukrainian languages, to analyze the syntactic structures of the English language.
8 – Resource support for the implementation of the program	
Personnel support	Corresponds to the personnel requirements for implementation of educational activities in the field of higher education in accordance with the current legislation of Ukraine (Resolution of the Cabinet of Ministers of Ukraine "On approval of licensing conditions for the educational activities of educational institutions" of December 30, 2015, No. 1187, Appendix 12).
Resources and technical support	Complies with the requirements for material and technical support for carrying out educational activities in the field of higher education in accordance with the current legislation of Ukraine (Resolution of the Cabinet of Ministers of Ukraine "On Approval of Licensing Conditions for the Educational Activities of Educational Institutions" of December 30, 2015, No. 1187, Appendix 12).
Information, studying and methodological support	Complies with the requirements for information and educational and methodological support for the implementation of educational activities in the field of higher education in accordance with the current legislation of Ukraine (Resolution of the Cabinet of Ministers of Ukraine "On Approval of Licensing Conditions for the Educational Activities of Educational Institutions" dated

	December 30, 2015, No. 1187, Appendix 12).
9 – Academic mobility	
National Credit Mobility	Based on the bilateral agreements between National Technical University "Kharkiv Polytechnic Institute" and the leading technical universities of Ukraine.
International credit mobility	Based on the bilateral agreements between National Technical University "Kharkiv Polytechnic Institute" and higher education institutions of foreign partner countries.
International applicants education	Possible after completing the Ukrainian language course.

2. LIST OF COMPONENTS OF EDUCATIONAL AND PROFESSIONAL PROGRAM

Code / №	Components of the educational program (educational disciplines, course projects (work), practice, qualification work)	Number of credits	Assessment form
1	2	3	4
1. General Training			
1. OBJECTIVE COMPONENTS OF EDUCATIONAL PROGRAM			
GT 1	History and Culture of Ukraine	4	Exam
GT 2	Ukrainian Language	3	Exam
GT 3	Ecology	3	Credit
GT 4	Jurisprudence	3	Exam
GT 5	Philosophy	3	Credit
GT 6	Self-management	3	Credit
GT 7	Lexicography	3	Credit
GT	Physical Education	12	Credit
2. Professional Training			

	2.1. Professional Training in specialty		
	OBJECTIVE COMPONENTS OF EDUCATIONAL PROGRAM		
PT 1	Introduction to Speciality	3	Credit
PT 2	History of World Literature	6	Credit
PT 5	Practical Course of English	42	Exam
PT 15	Practical Course of the Second Foreign Language	9	Credit
		22	Exam
PT 22	History of Science and Technology	3	Credit
PT 23	Theory and Practice of Translation	4	Credit
		4	Exam
PT 26	Fundamentals of Occupational Safety and Health	3	Credit
	2.2. Professional Training in Specialization		
PTS1 1	General Linguistics	3	Credit
PTS1-2	Mathematical Basis of Linguistics	4	Exam
		4	
PTS1-5	Fundamentals of Programming	5	Exam
		4	
PTS1-8	Modern Technologies of Text Data Processing	4	Exam
PTS1-9	Linguistic Semantics	3	Credit
PTS1-10	Quantitative Linguistics	4	Exam
PTS1-11	Information Resources for Linguistic Activities	5	Exam
	3. SELECTIVE COMPONENTS OF THE EDUCATIONAL PROGRAM		
	OPTIONAL DISCIPLINES		
	3.1. Optional Disciplines by Specialization "Applied Linguistics"		
OP1. 1	Formal Lexicology	3	Credit
OP1. 2	Object-oriented Programming	5	Exam

OP1. 3	Mathematical Statistics	3	Credit
OP1. 4	Structural Linguistics	5	Exam
OP1. 5	Mathematical Modeling in Linguistics	5	Credit
		5	Exam
OP1. 8	Automated Translation	4	Exam
OP1. 9	Linguistic Aspects of Software Development	4	Exam
OP1. 10	Modern Technologies of Internet-Applications Development	6	Exam
		3	Exam
OP1. 13	Contrastive Stylistics	3	Credit
OP1. 14	Contrastive Grammar	4	Credit
	Practice	6	Credit
	Attestation	6	
3.2. Students optional disciplines		12	
B 1	Discipline 1	4	Credit
B 2	Discipline 2	4	Credit
B 3	Discipline 3	4	Credit
Total **for General Training Cycle**:		**34,0**	
Total **for Professional Training Cycle**:		**144,0**	
Total **for compulsory components**:		**178,0**	
Total **for optional components**:		**62,0**	
including **student optional disciplines**:		**12,0**	
TOTAL AMOUNT OF EDUCATIONAL PROGRAM		**240**	

1. EDUCATIONAL PROGRAM CONTENTS
ACCORDING TO BLOCKS OF COMPONENTS AND CYCLES OF TRAINING

№	Cycle of Training	Volume of Training Load of Applicant of Higher Education (Credits / %)		
		Compulsory components of educational and professional program	Selective components of educational and professional program	Total for education period
1	2	3	4	5
1	Cycle of General Training	34 / 14	-	34 / 14
2	Cycle of Professional and Practical Training	144 / 60	-	144 / 60
3	Optional Disciplines	-	-	62 /26
Total for education period		178 / 74	62 / 26	240 / 100

2. FORM OF CERTIFICATION OF HIGHER EDUCATION APPLICANTS

Certification of graduates of the educational program "Applied and Computational Linguistics" in specialty 035Philology is conducted in the form of a defense of a qualifying bachelor paper and ends with the issuance of the document of the established model for the award of the bachelor's degree with the qualification: Bachelor of Philology. The certification is carried out openly and publicly.

3. STRUCTURAL-LOGIC SCHEME OF APPLIED AND COMPUTER LINGUISTICS EDUCATIONAL AND PROFESSIONAL PROGRAM

4. Matrix of compliance of program competences to education program components

	GTR1	GTR2	GTR3	GTR4	GTR5	GTR5	GTR6	GTR7	STR1	STR2	STR3	STR4	STR5	STR6	STR1-1	STR1-2	STR1-3	STR1-4	STR1-5	STR1-6	STR1-7	STR2-1	STR2-2	STR2-3	STR2-4	STR2-5	STR2-6	STR2-7	STR2-8	STR2-9	STR2-10
GT1	+																														+
GT2		+																													
GT3			+																												
GT4				+																											
GT5					+																										
GT6							+																								
GT7								+																							
PT1									+																						
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PT5											+																				
PT15											+																				
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PT 23											+																				
PT 26												+																			
PT S1													+																		
PT S2														+																	
PT S5															+																
PT S8																+															
PT S9																	+														
PT S10																		+													
PT S11																			+												
OP 1-1																				+											
OP 1-2																					+										
OP 1-3																						+									
OP 1-4																							+								
OP 1-5																								+							

OP 1-8																									+				
OP 1-9																											+		
OP 1-10																												+	
OP 1-13																													+
OP 1-14	+																													+

5. Matrix of compliance of program training results to education program components

	PH1	PH2	PH3	PH4	PH5	PH6	PH7	PHC1	PHC2	PHC3	PHC4	PHC5	PHC6	PHC11	PHC12	PHC13	PHC14	PHC15	PHC16	PHC1-7	PHC2-1	PHC2-2	PHC2-3	PHC2-4	PHC2-5	PHC2-6	PHC2-7	PHC2-8	PHC2-9	PHC2-10
GT1	+																													
GT2		+																												
GT3			+																											
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PTS 9												+													
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PTS 11														+											
OP1 -1															+										
OP1 -2																+									
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