Olena MYKHAILENKO (Kyiv)
Taras Shevchenko National University of Kyiv
olenamykhailenko14@gmail.com

PRIJEVODI MODERNE POPULARNE NAUKE: NOVO DIGITALNO DOBA

Danas popularna nauka kao žanr postaje sve važnija, privlačeći bližu vezu između nespecijalističke publike i specijalizovanog područja nauke. Nova naučna znanja dijele se širom svijeta uglavnom putem prijevoda. Imajući to na umu, prijevod popularne nauke zahtijeva dublja istraživanja u smislu prevodilaštva kao akademske discipline te kvaliteta prijevoda popularnih naučnih tekstova koji imaju posebno značenje. U Ukrajini uprkos sve većem broju prevedenih publikacija, od kojih su većina prijevodi s engleskoga jezika, odnos nauke i popularne naučne literature još nije dovršen. Iako su prevedeni popularni naučni tekstovi generalno dobili pozitivnu recepciju, u kritici se može raspravljati o tačnosti prijevoda na ukrajinski jezik. Ovaj rad naglašava važnost kvalitetnog prijevoda popularnih naučnih tekstova sa stranih jezika. Poseban je interes ovoga istraživanja vezan za poređenje prijevoda na različitim jezicima, uključujući blisko povezane jezike, kao što su ukrajinski i ruski. Naše istraživanje temelji se na izvornoj analizi koja ima za cilj utvrditi stepen ekvivalentnosti prijevoda popularne naučne knjige *The New Digital Age* pisane na engleskom jeziku, osnivača Googlea, Erika Schmidta i Jareda Cohena, te prijevoda na ukrajinski i ruski jezik.

Ključne riječi: *popularni naučni tekst, stepen ekvivalencije prijevoda, engleski jezik, ukrajinski jezik, ruski jezik, prijevodne strategije, prevoditeljski uređaji.*

Introduction. It is a well-known fact that for the development of science in modern society, we need three basic constituents: education, dynamic scientific activity and popular science literature. Without the third element, there will be no stimulus or interest in science at a young age. For this, we require a necessary intellectual environment, and one of the ways of forming such an environment is to publish science, popular science (in a broad manner, intelle-

ctual) literature and translated literature. At large, one can state that translations constitute the cornerstone of both creating the full value cultural sphere, the language element for all citizens, and preserving the national identity of people. The spread of written translations in general has opened doors to cultural advances of other nations, providing mutual enrichment of literatures and cultures. As written by A. Wiezbytska[1], with reference to E. Sapir[2], language is a symbolic guide to culture; and a translator's task is to introduce the reader to a new culture by faithfully conveying all features of the original text.

The importance of translated popular science editions that introduced us to the world achievements is scarcely overestimated. One such work is the translation of the world's best-seller, *The New Digital Age*[3], by *Google* architects Eric Schmidt and Jared Cohen. The book was originally published in 2013, with the introduction of the Russian version in the same year (the translator S. Filin). The translation into Ukrainian was published in 2015 by the *Litopys* Publishing House, Lviv (the translator H. Leliv). This is a must-read for those concerned about the present and the future. More than a book about gadgets and data, this is a prescriptive glimpse of how technology is reshaping our world and the lives of the people who live in it[4]. The study material is interesting firstly and foremostly regarding its contents. The fact that the authors of the original text are *Google* founders is a sufficient impetus to read this book. *The New Digital Age* translations are exciting indeed both for the reader, as they provide food for thought, and the translator, as they contain peculiar translation decisions and induce a thorough analysis of the source and target texts in terms of translation studies.

The novelty of our research is based upon the original analysis of source and target texts that aims to establish the degree of translation equivalence (in language, style, translation devices) of the English language popular science book and its Ukrainian- and Russian-language translations. Our main goal was to obtain determinant conclusions about the translation strategies that were used to achieve the equivalence of selected text fragments, comparing ways and methods of translations into Ukrainian and Russian as closely related languages. Historically, in the Soviet Union, translations into Russian

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[1] Wierzbicka, A., *Understanding Cultures Through Their Key Words: English, Russian, Polish, German, Japanese*, Oxford University Press, New York, 1997.

[2] Sapir, Ed., *Selected Writings of Edward Sapir in Language, Culture and Personality*, ed. D. G. Mandelbaum, University of California Press, Berkeley, 1949, p. 162.

[3] Schmidt, E. and Cohen, J., The New Digital Age: Reshaping the Future of People, Nations and Business, Alfred A. Knopf, New York, 2013.

[4] *The New Digital Age: Transforming Nations, Businesses, and Our Lives*, accessed September 2, 2018, https://www.amazon.com/New-Digital-Age-Transforming-Businesses/dp/030794705X

dominated other national languages restricted by the Soviet government. Since Ukraine regained its independence in 1991, there has been an increasing call for translations into the Ukrainian language. The comparative analysis of two translations – Ukrainian and Russian – seems to be of current interest in terms of contrasting the translators' decisions, revealing their benefits and pitfalls, and drawing conclusions regarding translation quality improvement. The textual analysis has shown that popular science writing presents particular translation challenges for culturally distant languages such as English on one hand and Russian and Ukrainian on the other.

Characteristic features of popular science writing. The growing popularity of popular science texts contributes to the issue of high-quality translation. The genre is very specific and may pose problems for a translator. It is essential for translators to be aware of such problems and the factors affecting the quality of translations of popular science writing.

As M. Bołtuć[5] states, with reference to S. Gajda[6] and J. Nocoń[7], the popular science style is a subcategory of scientific style, as it is a combination of scientific style features and colloquialisms[8]. Most of them are hybrid texts with different style (scientific, journalist, or artistic) elements[9]. Among the most general features of the popular science style are subjectivity and expressiveness, which are directly opposed to the objectivity of the scientific style. Authors of popular science texts can subjectively evaluate presented facts by using colloquial or emotionally-coloured lexical units with expressive syntax that resembles the spoken language. According to N. Baumgarten and J. Probst[10], popular science texts are „between the level of high abstractness – associated with a very high proportion of technical vocabulary – and the level of low abstractness as associated with a restricted proportion of technical vocabulary (adapted to the special kind of addressee, i.e. the lay reader) and a less formalised syntax". Thus, the

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5   Bołtuć, M., *Lost In Translation: Popular Science Genre As a Mediation Between American and Polish Culture – the Case Study of National Geographic,* accessed September 2, 2018. http://www.woiz.polsl.pl/znwoiz/z84

6   Gajda, S., *Podstawy Badań Stylistycznych nad Językiem Naukowym*, Państwowe Wydawnictwo Naukowe, Warszawa, 1982.

7   Nocoń, J., *Podręcznik w komunikacji dydaktycznej*, [in:] T. Rittel (ed.), Dyskurs Edukacyjny, Wydawnictwo Naukowe Wyższej Szkoły Pedagogicznej, Kraków, 1996.

8   Bartmiński, J., *Derywacja stylu '*, [in:] J. Bartmiński (ed.): Pojęcie derywacji w stylistyce, Wydawnictwo UMCS, Lublin, 1981.

9   Starzec, A., *Współczesna Polszczyzna Popularnonaukowa*, Wydawnictwo Uniwersytetu Opolskiego, Opole, 1999.

10   Baumgarten, N. and Probst, J., *The Interaction of Spokenness and Writtenness in Audience Design*, [in:] J. House and J. Rehbein (ed.): Multilingual Communication, John Benjamins, Amsterdam, 2004, p. 71.

use of technical and everyday language makes popular science texts more comprehensible.

The key conclusions for a translator of popular science texts have been briefly summarised by I. Alekseyeva[11] who emphasised that the dominant feature of translating popular science texts is the use of translation devices, which render the cognitive information adapted by the author and support the readers' interest in this information. Thus, terms and general science lexis are rendered as monosemantic and variational equivalents, respectively. The necessary number of passive structures, impersonal and indefinite personal sentences is conveyed through relevant translation transformations. Colloquial language, emotional and evaluative lexis, emotional inversions, rhetoric questions, phraseological units and figural clichés are rendered through functionally relevant translation devices, mostly variational equivalents. Epithets, comparisons, metaphors are translated with their meanings preserved.

The New Digital Age contains the above stated specific features of popular science texts as a genre that should be considered by the translator when trying to reach the equivalence in reproducing popular science texts into the target language.

Equivalence in translation. Equivalence is the core concept in translation quality assessment. Equivalence is variously regarded as a necessary condition for translation and a useful category for describing translations. Proponents of equivalence-based theories of translation define equivalence as the relationship between a source text (ST) and a target text (TT) that allows the TT to be considered as a translation of the ST in the first place[12].

There exists theoretically possible equivalence and optimal translation equivalence, where the former is defined as a correlation between the structures and rules of two languages and the latter as a conformity of source and target languages in each specific case. Here, achieving full translation equivalence is practically impossible and, sometimes, even unwelcome, as it can cause the misbalance of impact on the reader of the original and translated texts. In broad meaning, equivalence in translation as the main feature and condition of its functioning is viewed differently: on the one hand, it is viewed as a balanced correlation between the two most important characteristics of STs and TTs – completeness and accuracy of the meaning being rendered and, on the other hand, as a sameness of pragmatic impact of the original text on its own reader and that of the translated text on its reader. Thus, translation equ-

[11] Alekseyeva I., *Professionalnoye Obucheniye Perevodchika [Translator's Professional Training]*, Soyuz, Sankt-Peterburg, 2004, p. 215.

[12] Kenny D., *Equivalence*, [in:] M. Baker (ed.), Routledge Encyclopedia of Translation Studies, Routledge, London, 2001, pp. 77–80.

ivalence can be viewed as a functional and communicative equivalence, i.e. an optimal balance of semantics and form, denotative, connotative, stylistic, social and cultural and pragmatic information in the source and target texts. No doubt, it is practically impossible to preserve semantics and form and convey various types of information to a reader representing a different culture. Thus, the most harmonious introduction of the target text readers to a foreign culture and language can only be possible with this balance, which can only be achieved by a highly-skilled translator[13].

The most influential translation equivalence theories, along with translation quality assessment procedures, have been proposed by many scholars in the field, such as J. P. Vinay and J. Darbelnet[14], R. Jakobson[15], E. Nida and Ch. Taber[16], J. Catford[17], J. House[18], W. Koller[19], P. Newmark[20], A. Pym[21], among others. Additionally, translation equivalence is not only associated with its typology but also with various degrees of equivalence. In particular, M. Bayar[22] distinguishes seven degrees of equivalence. It should be noted that this classification according to the degree of equivalence, which seems more practical when comparing various translations, has been used for the purpose of our research to analyse *The New Digital Age* and its translations.

According to M. Bayar, equivalence can be measured by a scale that ranges from optimum equivalence to zero equivalence. These degrees of equivalence may be measured by the levels of approximation or distance from the ST's superordinate goal. While optimum equivalence is considered as the highest level in translation, or the most approximate degree from the ST, zero equivalence is considered the lowest degree or the most distant degree from

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[13] Selivanova O., *Suchasna Linhvistyka: Napryamy ta Problemy [Modern Linguistics: Directions and Problems]*, 2017. Accessed September 2, 2018. http://www.academia.edu/19314183/Selivanova_O.O_Suchasna_lingvistyka_napriamy_ta_problemy_1576.

[14] Vinay, J-P. and Darbelent, J., *A Methodology for Translation*. Translated by Juan C. Sager and M. J. Hamel. [in:] L.Venuti (ed.), *The Translation Studies Reader*, Routledge, London and New York, 1958/1995, pp. 84–93.

[15] Jakobson, R., *On Linguistic Aspects of Translation*, [in:] R.Brower (ed.), *On Translation*, Oxford University Press, New York, 1966.

[16] Nida, E. and Taber, Ch., *The Theory and Practice of Translation*, Brill, Leiden, 1969.

[17] Catford, J., *A Linguistic Theory of Translation*, Oxford University Press, Oxford, 1965.

[18] House, J., *Translation Quality Assessment: A Model Revisited*, Narr, Tubingen, 1997.

[19] Koller, W., *Equivalence in translation theory*, [in:] A. Chesterman (ed.), Readings in Translation Theory, Oy Finn Lectura Ab., Helsinki, 1989, pp. 99–104.

[20] Newmark, P., *Approaches to Translation*, Pergamon Press, Oxford, 1981.

[21] Pym, A., *Exploring Translation Theories*, Routledge, London, 2010.

[22] Bayar, M., *To Mean or Not to Mean*. Kadmous Cultural Foundation, Khatawat for Publishing and Distribution, Damascus, 2007, pp. 213–223.

the ST goal[23]. Thus, equivalence consists of seven degrees, which have been listed as follows: optimum translation, near-optimum translation, partial translation, weaker and stronger translation, poor translation, mistranslation and zero equivalence/non-translation. Each degree has specific characteristics that differentiate it from the other. To distinguish these degrees, much emphasis will be placed on pragmatic and cultural aspects as measures to assess the degree of preservation of the superordinate goal of the ST.

The comparative analysis of source and target texts. In our analysis, we observed mostly optimum, near-optimum, partial translation, with some mistranslations and non-translations marking down the functional and communicative equivalence of the whole target text.

Theoretically, *optimum equivalence* is „the closest equivalence degree attainable, given the circumstances, the linguistic and extralinguistic resources actually available to the translator"[24]. In other words, a TT may reach the optimum degree when it preserves the superordinate goal of the ST and its five requirements (i.e., genre, field, mode, tenor and type). The TT should be semantically and grammatically well-formed, with sentences that cohere to each other to fulfil the ST goal and preserve its content. However, any deviation from these characteristics will distance the translated text from the optimum degree.

Thus, optimum translation equivalence in both Ukrainian translation (henceforth UT) and Russian translation (henceforth RT) can be observed in Fragment 1, with the content and form preserved and the function rendered. In the UT, we observe language compression – instead of the phrase „the few things humans have built", the translator used the noun *винахід*. Although a noun – *изобретение* – also appears in the RT, the verb form „have built" has been rendered with an attractive contextual replacement – *(люди) создали*:

1. The Internet is among <u>the few things humans have built</u> that they don't truly understand[25]. *– Інтернет є одним із небагатьох <u>винаходів</u>, що їх людина не до кінця розуміє*[26]. *– Интернет относится к тем <u>изобретениям</u>, которые <u>люди создали</u>, но пока не поняли до конца*[27].

Text fragments 2 and 3 also illustrate the optimum degree of translation, where the translators presented different equivalents of the original lexical units, without keeping to word-for-word translation but adequately rendering the meaning:

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[23]   Ibid.
[24]   Ibid, *p. 214.*
[25]   Schmidt, E. and Cohen, J., *The New Digital Age.*
[26]   Shmidt, E. and Koen, D., *Novyi Tsyfrovyi Svit*, p. 9.
[27]   Shmidt, E. and Koen, D., *Novyi Tsyfrovoi Mir*, p. 11.

2. Your online identity in the future is unlikely to be a simple Facebook page; instead it will be a constellation of profiles, <u>from every online activity</u>, that will be verified and perhaps even regulated by the government[28]. – *У майбутньому ваша віртуальна особистість не обмежиться простенькою сторінкою на Facebook; натомість це буде ціла плеяда профілів <u>із кожного сайту, де ви будете зареєстровані</u>. Цей профіль перевірятиме, а то й контролюватиме уряд*[29]. – *В будущем ваша виртуальная личность вряд ли будет ограничена страничкой в Facebook – скорее всего, она станет целым созвездием профилей, <u>созданных вами в интернете</u>, которое будет верифицироваться и даже регулироваться властями*[30].

3. The data revolution will bring <u>untold</u> benefits to the citizens of the future. They will have unprecedented insight into how other people think, behave and adhere to norms or deviate from them, both at home and in every society <u>in the world</u>[31]. – *Революція даних принесе <u>невимовну</u> користь громадянам майбутнього. Тепер вони вперше <u>достеменно</u> з'ясують, як думають і поводяться їхні співвітчизники та мешканці інших країн, дотримуються вони правил чи ні*[32]. – *Революция данных принесет жителям планеты <u>колоссальное благо</u>. В частности, они смогут узнать, что думают и как ведут себя другие люди, каких правил придерживаются, почему их нарушают – причем не только соотечественники, но и те, что живут <u>на других континентах</u>*[33].

An undeniable advantage of the UT (Fragment 3) is the translator's excellent use of the native language with brilliant lexical equivalents, without unnecessary borrowings; this demonstrates the rich vocabulary of the Ukrainian translator. The Russian translator's lexicon here is more neutral than that of the original – it is less emotionally coloured when compared to the UT. However, the Russian version is noteworthy with its attractive concretisation: „in the world" – „на других континентах".

4. Not every government or military in the world has the technical infrastructure or human capital to support its own fleet of unmanned vehicles; only those with <u>deep pockets</u> will find it easy to buy that capability, openly or otherwise[34]. – *Не кожен уряд чи військова влада у світі має технічну*

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[28]   Schmidt, E. and Cohen, J., *The New Digital Age.*

[29]   Shmidt, E. and Koen, D., *Novyi Tsyfrovyi Svit*, p. 39.

[30]   Shmidt, E. and Koen, D., *Novyi Tsyfrovoi Mir*, p. 43.

[31]   Schmidt, E. and Cohen, J., *The New Digital Age.*

[32]   Shmidt, E. and Koen, D., *Novyi Tsyfrovyi Svit*, p. 40.

[33]   Shmidt, E. and Koen, D., *Novyi tsyfrovoi mir*, p. 44.

[34]   Schmidt, E. and Cohen, J., *The New Digital Age.*

інфраструктуру чи людський капітал, щоб підтримувати власну армію безпілотників; придбати цю зброю, відкрито чи таємно, зможуть тільки <u>заможні держави</u>[35]. *– Не каждое правительство или армия в мире владеет технической инфраструктурой и людскими ресурсами для того, чтобы иметь собственный флот беспилотников: приобрести их, открыто или тайно, могут лишь очень <u>состоятельные покупатели</u>*[36].

In general, Fragment 4 can be considered optimum though there are some losses in style – for instance, demetaphorisation of the phrase *deep pockets* where possible equivalents could be *товстосуми, багатії* (UT) and *толстосумы, богатеи* (RT).

5. Those with state resources <u>will have the upper hand</u> in any marketing war, but never the exclusive advantage[37]. *– Ті, що володіють державними ресурсами, <u>візьмуть гору</u> в маркетинговій війні, але виняткової переваги не матимуть*[38]. *– Когда в распоряжении одного из участников противостояния имеются государственные ресурсы, он получает <u>заметное преимущество</u> в любой информационной войне*[39].

Sentence 5 demonstrates a word-for-word translation with the Ukrainian equivalents preserving the idiomacity of the expression *to have the upper hand* while the Russian translator replaced it with a more stylistically neutral word combination.

Near-optimum translation refers to cases where the ST superordinate goal and sub-goals are cohesively and coherently rendered to the TT but do not reach the readability of the optimum degree from a textual point of view[40], as shown in Fragment 6, which illustrates the following paraphrase:

6. At every level of society, connectivity will continue to become <u>more affordable and practical in substantial ways</u>[41]. *– <u>Зв'язок</u> ставатиме щораз <u>доступнішим і практичнішим</u> для кожної верстви суспільства*[42]. *– <u>Интернет</u> будет становиться <u>все доступнее, в том числе и по цене</u>*[43].

7. Never before in history have so many people, from so many places, had so much <u>power</u> at their fingertips[44]. *– Ще ніколи так багато людей*

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[35] Shmidt, E. and Koen, D., *Novyi Tsyfrovyi Svit*, p. 215.
[36] Shmidt, E. and Koen, D., *Novyi Tsyfrovoi Mir*, p. 233.
[37] Schmidt, E. and Cohen, J., *The New Digital Age.*
[38] Shmidt, E. and Koen, D., *Novyi Tsyfrovyi Svit*, p. 200.
[39] Shmidt, E. and Koen, D., *Novyi Tsyfrovoi Mir*, p. 216.
[40] Bayar M., 2007, *To Mean or Not to Mean,* p. *220.*
[41] Schmidt, E. and Cohen, J., *The New Digital Age.*
[42] Shmidt, E. and Koen, D., *Novyi Tsyfrovyi Svit*, p. 10.
[43] Shmidt, E. and Koen, D., *Novyi Tsyfrovoi Mir*, p. 12.
[44] Schmidt, E. and Cohen, J., *The New Digital Age.*

з усіх усюд не мали стільки <u>влади</u> в своїх руках[45]. – *Никогда прежде у такого огромного количества людей из разных стран не появлялось столько <u>возможностей</u>*[46].

Both translations in Fragment 7 are grammatically and lexically accurate – the emphatic position of *never* is preserved; besides, in the Russian version, the word *power* has been rendered with the author's individual equivalent *возможности*.

In practice, cases of word-for-word translation in both UT and RT are quite rare – one can mostly observe various translation techniques used to faithfully convey *the sense* rather than preserve *the form*. This is illustrated by Fragment 8:

8. In the future, tools like biometric data matching, SIM-card tracking and easy-to-use content-generating platforms will facilitate a level of accountability <u>never before seen</u>. A witness to a crime will be able to use his phone to capture what he sees and identify the perpetrator and victim with <u>facial-recognition software</u> almost instantly, without having to be directly in harm's way. Information about crimes or <u>brutality</u> in digital form will be automatically uploaded to the cloud (thus no data loss if the witness's phone is confiscated) and perhaps sent to an international monitoring or judicial body. An international court could then investigate, and depending on what it found, begin a public virtual trial and broadcast the proceedings back into the country where the perpetrator <u>was roaming free</u>. The risk of public shame and criminal charges might not deter <u>leaders</u>, but it would be enough to make some <u>foot soldiers think twice</u> before engaging <u>in more violent activities</u>. Professionally verified evidence would be available at the Hague's website before the trial, and witnesses would be able to testify virtually and in safety[47]. – *Із сучасними технологіями – а це зіставлення біометричних даних, відстеження SIM-карток і <u>легкі в користуванні платформи для створення контенту</u> – рівень відповідальності буде високим як ніколи. Свідок злочину зафіксує все, що відбувається на його очах, на камеру свого телефона й відразу визначить особи зловмисника і жертви за допомогою <u>програми для розпізнавання облич</u>. Для цього йому не доведеться наражати себе на небезпеку. Інформацію про злочини чи жорстоке поводження буде автоматично завантажено до „хмари" в цифровій формі (навіть якщо у свідка відберуть телефон, усі дані буде збережено) і, можливо, надіслано до міжнародних моніторингових чи судових установ. Тоді за справу візьметься міжнародний суд, який розпочне публічний віртуальний судовий процес і транслюватиме*

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[45] Shmidt, E. and Koen, D., *Novyi Tsyfrovyi Svit*, p. 10.

[46] Shmidt, E. and Koen, D., *Novyi Tsyfrovoi Mir*, p. 12.

[47] Schmidt, E. and Cohen, J., *The New Digital Age.*

засідання в ту країну, де гуляє на волі злочинець. Можливо, ватажків і не спинить страх осоромитися на публіці й потрапити до в'язниці, а от прості виконавці їхніх задумів добре подумають перед тим, як піти на злочин. Перевірені професіоналами докази буде опубліковано на сайті Гаазького трибуналу перед початком судового процесу, а свідки зможуть дати покази віртуально, в безпечних умовах[48]. – *В будущем такие инструменты, как сверка биометрических данных, отслеживание SIM-карт и простые в использовании платформы для создания контента, обеспечат невиданный доселе уровень ответственности перед обществом. Свидетель преступления зафиксирует увиденное на своем телефоне и почти мгновенно идентифицирует преступника при помощи программного обеспечения распознавания лиц, не подвергаясь непосредственной опасности. После этого информация о преступлении или насилии со стороны полиции будет автоматически загружена в „облако" (что позволит сохранить данные в случае конфискации телефона свидетеля) и, возможно, направлена в международные контрольные или судебные органы. Рассмотрев представленные документы, международный суд начнет виртуальный процесс, за ходом которого смогут наблюдать жители страны, где живет обвиняемый. Возможно, главарей режима риск публичного позора и уголовного преследования и не испугает, но рядовые исполнители в следующий раз хорошо подумают, прежде чем применить насилие. Проверенные профессионалами свидетельства будут доступны на сайте Гаагского трибунала еще до начала судебного заседания, на котором свидетели смогут выступить заочно, не подвергаясь опасности*[49].

Fragment 8, topical as to its content, demonstrates skilful use by both the translators of various functional translation devices that allow, when approaching the target language norms, keeping adequate source text structures. So, the English language participial construction „(a level of accountability) never before seen" has been rendered in the UT in a descriptive way („буде високим як ніколи"), while in RT, it has been matched with a fixed equivalent that has extra emotional colouring – „невиданный доселе". The English language prepositional group „facial-recognition software" corresponds in translations to preposition-and-noun word combinations („програма для розпізнавання облич", „программное обеспечение распознавания лиц"), with lexical decompression due to lack of direct compact equivalents in the target texts. Both translators have aptly chosen lexical equivalents to the English language idiomatic expre-

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[48]   Shmidt, E. and Koen, D., *Novyi Tsyfrovyi Svit*, p. 206.
[49]   Shmidt, E. and Koen, D., *Novyi Tsyfrovoi Mir*, p. 224.

ssions („foot soldiers" – „прості виконавці" and „рядовые исполнители", respectively, „think twice" – „добре подумають" and „хорошо подумают", respectively). The UT is closer to the original in rendering certain sentence fragments: „leaders" – they are „ватажки (злочинних угрупувань)", but not „лидери режиму", „to roam free" – „(злочинець) гуляє на волі", but does not „живет в стране". In the RT, more precise is the word combination „(engaging) in more violent activities" – „применить насилие", if compared to the generalised Ukrainian „піти на злочин". However, the Russian translator rendered the noun *brutality* („crimes or brutality") using the modulation technique („насилие со стороны полиции"), which, in our opinion, does not conform to the original text, with the chosen word combination having no dictionary equivalents.

9. A new realm of insurance will emerge, too. Companies will offer to insure your online identity against theft and hacking, fraudulent accusations, misuse or appropriation. For example, parents may take out an insurance policy against reputational damage caused by what their children do online. Perhaps a teacher will take out an insurance policy that covers her against a student hacking into her Facebook account and changing details of her online profile to embarrass or defame her[50]. *– З'явиться нова послуга в галузі страхування. Компанії пропонуватимуть вам застрахуватися від того, що вашу віртуальну ідентичність хтось украде, зламає чи використає у шахрайських чи злочинних цілях. До прикладу, батьки зможуть укласти договір страхування, який гарантуватиме, що їхня репутація не постраждає від того, що робитимуть в Інтернеті їхні діти. Вчителька придбає страховий поліс, щоб отримати відшкодування в разі, якщо хтось із учнів зламає її обліковий запис у Facebook і змінить особисту інформацію, щоб принизити чи знеславити її*[51]. *– Появится новое направление страхования. Вам предложат застраховать свою онлайн-личность от кражи и взлома, ложных обвинений, злоупотреблений и несанкционированного присвоения. Родители смогут купить страховку от репутационного ущерба, который способны причинить им действия их детей в интернете. А преподаватель, скажем, захочет застраховаться от взлома студентами его профиля в Facebook и размещения на странице оскорбительной и порочащей информации*[52].

In Fragment 9, the Russian lexical and grammatical equivalents are more precise and closer to the original than the Ukrainian ones, where descriptive translation predominates.

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[50] Schmidt, E. and Cohen J., *The New Digital Age*.
[51] Shmidt, E. and Koen, D., *Novyi Tsyfrovyi Svit*, p. 45.
[52] Shmidt, E. and Koen, D., *Novyi Tsyfrovoi Mir*, p. 49.

Both translations also contain examples of *partial translation*, which refers to the partial rendering of the ST's superordinate goal to the TT. It should be noted here that the readability and accuracy of the TT does not mean its preservation of the ST, for the TT might be read smoothly, without conveying the ST goal[53], for example:

10. The basics of <u>online identity</u> <u>could</u> also change. Some governments will consider it too risky to have thousands of anonymous, untraceable and unverified citizens – „hidden people"; they'll want to know who is associated with each online account, and will require verification, at a state level, in order to exert control over the virtual world[54]. *– Основні <u>засади користування мережею</u> теж <u>зміняться</u>. Уряди деяких країн вважатимуть, що занадто небезпечно мати тисячі „партизанів" – анонімних, невідомих їм громадян, дії яких неможливо відстежити; вони захочуть дізнатися, кому належить кожен обліковий запис в Інтернеті, та вимагатимуть реєстрації на державному рівні, щоб контролювати віртуальний світ*[55]. *– <u>Могут</u> измениться сами <u>основы виртуальной идентификации</u>. Некоторые правительства, решив, что иметь тысячи анонимных, бесконтрольных и непроверенных граждан – „подполье" – слишком рискованно, захотят узнать, кто скрывается за каждым онлайн-аккаунтом, и потребуют верификации на государственном уровне для усиления контроля над виртуальным пространством*[56].

The degree of Ukrainian translation in Fragment 10 is partial as, unlike the Russian version, it does not convey the modality, which is quite important for the meaning of the sentence. More precise in the RT is the equivalent of the word combination „online identity" (основы *виртуальной идентификации*), which was excessively generalised by the Ukrainian translator (засади *користування мережею*).

11. The origins of violent conflicts <u>are far too</u> complex to have a single root cause[57]. *– Насильницькі конфлікти вибухають <u>через силу-силенну причин</u>*[58]. *– Причины насильственных конфликтов столь сложны, что <u>выделить</u> какую-то одну невозможно*[59].

In Sentence 11, due to the Ukrainian translator's tendency to frequently

[53] Bayar M., 2007, *To Mean or Not to Mean,* p. *221.*
[54] Schmidt, E. and Cohen, J., *The New Digital Age.*
[55] Shmidt, E. and Koen, D., *Novyi Tsyfrovyi Svit*, p. 39.
[56] Shmidt, E. and Koen, D., *Novyi Tsyfrovoi Mir*, p. 43.
[57] Schmidt, E. and Cohen, J., *The New Digital Age.*
[58] Shmidt, E. and Koen, D., *Novyi Tsyfrovyi Svit*, p. 192.
[59] Shmidt, E. and Koen, D., *Novyi Tsyfrovoi Mir*, p. 208.

use the descriptive translation, a part of the meaning remains unconveyed. Such a translation does not conform to the semantic precision.

12. People who <u>try to perpetuate myths</u> about religion, culture, ethnicity or anything else will <u>struggle to keep their narratives afloat</u> amid a sea of newly informed listeners. With more data, everyone gains a better frame of reference[60]*. – Людям, які <u>всіляко підтримують стереотипи</u> щодо релігії, культури чи етнічного походження, буде <u>нелегко поширювати свої ідеї</u> серед обізнаних слухачів. Коли є більше інформації, кожен може <u>скласти власну думку</u>*[61]*. – Тем, кто <u>хочет распространять</u> религиозные, культурные и этнические мифы, придется <u>кормить своими выдумками</u> сообщество хорошо информированных слушателей. В распоряжении людей появится больше данных и способов их проверить*[62].

So, Fragment 12 shows that the degree of equivalence in the RT is higher than that in the UT with too much imprecise descriptive translation: though there is no word-for-word Russian translation, it sticks to the target language norms and conveys in full the meaning of the original sentence.

13. The shift from having one's identity shaped off-line and projected online to an identity that is fashioned online and experienced off-line will have implications for citizens, states and companies as they navigate the new digital world[63]*. – Наразі наша особистість формується в реальному світі, а вже з неї народжується „мережевий двійник", тоді як у майбутньому вона моделюватиметься в Інтернеті й визначатиме наш образ у справжньому житті. Це матиме наслідки для громадян, держав і компаній, що діятимуть у цифровому світі*[64]*. – Переход от ситуации, когда личность формируется офлайн и позднее проецируется в сеть, к созданию онлайн-личности, которая затем воплощается в реальном мире, окажет огромное влияние на граждан, государства и компании*[65].

Text fragment 13 proves again the excessive use of descriptive translation in the Ukrainian version, as it makes the text cumbersome, taking the reader away from the meaning of the original sentence. The RT is more faithful here.

Partial equivalence is also observed in the UT in the following sentence, where the author wrongly applies the concretisation technique, with higher precision in the RT:

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[60]   Schmidt, E. and Cohen, J., *The New Digital Age.*
[61]   Shmidt, E. and Koen, D., *Novyi Tsyfrovyi Svit*, p. 41.
[62]   Shmidt, E. and Koen, D., *Novyi Tsyfrovoi Mir*, p. 45.
[63]   Schmidt, E. and Cohen, J., *The New Digital Age.*
[64]   Shmidt, E. and Koen, D., *Novyi Tsyfrovyi Svit*, p. 40.
[65]   Shmidt, E. and Koen, D., *Novyi Tsyfrovoi Mir*, p. 44.

14. Underneath this state-level competition, there will be an ongoing race by <u>civilians</u> and other non-state actors to acquire or build drones and robots for their own purposes[66]. – *Боротьба буде точитися не лише між державами – <u>мирні</u> мешканці та інші недержавні суб'єкти наввипередки купуватимуть чи створюватимуть дронів і роботів для власних потреб*[67]. – *Помимо соперничества на государственном уровне начнется борьба за обладание беспилотниками и роботами и использование их в своих интересах <u>среди обычных людей</u> и неправительственных структур*[68].

Apart from apt translation decisions, there are cases where in the UT unrendered are the whole sentence fragments („thus it reflects poorly upon them personally") what can be classified as *non-translation equivalence*. And the translator should more carefully select the lexical equivalents – though one of the dictionary translations of the verb *to confront* is *відкрито поговорити*, a better choice (in this context) would be *повстати*, in our opinion. The Russian translator conveyed all the lexical and grammatical units of the original sentence with attractive translation transformations:

15. Young people in Yemen might <u>confront</u> their tribal elders over the traditional practice of child brides if they determine that the broad consensus of online voices is against it, and thus it <u>reflects poorly upon them personally</u>[69]. – *Молодь у Ємені <u>відкрито звернеться</u> до місцевих старійшин, протестуючи проти дитячих шлюбів, якщо єменці побачать, що Інтернет-спільнота засуджує таку практику*[70]. – *Или, например, молодые йеменцы, обнаружив, что виртуальное сообщество отрицательно относится к культивируемой в стране традиционной практике женитьбы на маленьких девочках, <u>восстанут</u> против нее, поскольку решат, что <u>она бросает тень на них самих</u>*[71].

There are also *mistranslations*, where the TT does not only distort the superordinate goal of the ST but is also out of context[72]. Thus, in the fragment below, the Russian translator mixed up the meanings of the participles *developing* and *developed*; the UT is an example of optimum translation:

16. In the <u>developing</u> world, public wireless hot spots and high-speed home networks will reinforce each other, extending the online experience to places where people today don't even have landline phones. Societies will

[66]   Schmidt, E. and Cohen, J., *The New Digital Age.*
[67]   Shmidt, E. and Koen, D., *Novyi Tsyfrovyi Svit*, p. 215.
[68]   Shmidt, E. and Koen, D., *Novyi Tsyfrovoi Mir*, p. 233.
[69]   Schmidt, E. and Cohen, J., *The New Digital Age.*
[70]   Shmidt, E. and Koen, D., *Novyi Tsyfrovyi Svit*, p. 41.
[71]   Shmidt, E. and Koen, D., *Novyi Tsyfrovoi Mir*, p. 45.
[72]   Bayar M., *To Mean or Not to Mean, 2007,* p. 222.

leapfrog an entire generation of technology. Eventually, the accoutrements of technologies we marvel at today will be sold in flea markets as antiques, like rotary phones before them[73]. *– У країнах,* що розвиваються, *громадські бездротові точки доступу та високошвидкісні домашні мережі забезпечать Інтернет і там, де сьогодні немає навіть стаціонарних телефонів. Суспільство перестрибне через ціле покоління технологій. Зрештою пристрої, які сьогодні викликають у нас зачудування, продаватимуться на блошиних ринках як антикваріат (як свого часу телефони з диском)*[74]. *– В* развитых *странах общественные точки беспроводного доступа и высокоскоростные домашние сети, дополняя друг друга, позволят выходить в интернет даже там, где сегодня нет обычной телефонной связи. Эти регионы фактически перескочат через целый технологический этап. В конечном счете технические новинки, которыми мы гордимся сейчас, станут продаваться на блошиных рынках в качестве предметов старины, как их предшественники – дисковые телефоны*[75].

Fragment 17 gives another supporting proof that a translator should be more scrupulous to the original in trying to understand before rendering the correct meaning of all lexical units. Thus, in UT, the military context certainly suggests that the noun *clearing* („clearing a building") means „зачищення (будівлі)", and in the next sentence „room-clearing" also means *clearing (a building)*, but not *cleaning a room*. The translator should treat the original text with more attention, trying to grasp its meaning, avoiding inconsistencies: *clearing* – „зачистка" and „прибирання" – even in one text fragment:

17. Harry Wingo, a Googler and former Navy SEAL, spoke to the usefulness of using computers and „bots" instead of humans for surveillance, and of robots „taking point" in advancing through a field of fire or when clearing a building. *In the next decade, he said, more „lethal kinetics" – operations involving fire – „will be handed over to bots, including those like* room-clearing *that require split-second parsing of targets"*[76]. *– Гаррі Вінґо, працівник Google, колишній „морський котик" Військово-морських сил США, вважає, що під час розвідувальних операцій замість людей варто використовувати комп'ютери та „ботів", а роботи „розуміють", як просуватися смугою обстрілу або під час* зачистки будівлі. *За його словами, в майбутньому „смертельною динамікою" – операціями, що супроводжуватимуться обстрілом, – „займатимуться боти на кшталт тих,*

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[73] Schmidt, E. and Cohen, J., *The New Digital Age.*

[74] Shmidt, E. and Koen, D., *Novyi Tsyfrovyi Svit*, p. 11.

[75] Shmidt, E. and Koen, D., *Novyi Tsyfrovoi Mir*, p. 12.

[76] Schmidt, E. and Cohen, J., *The New Digital Age.*

що прибирають кімнати, які аналізують об'єкт за долю секунди"[77]. – По словам Гарри Уинго, сотрудника Google, в прошлом бойца отряда „морских котиков", компьютеры и „боты" полезно использовать для наблюдения, а боевые роботы хороши для того, чтобы занять опорную точку, преодолевая участок под огнем противника, или при зачистке здания. Он считает, что в следующем десятилетии на долю роботов будет приходиться больше операций с использованием огнестрельного оружия, „включая зачистку помещений, когда на прицеливание есть считанные доли секунды"[78].

Conclusions. It should be noted that our detailed analysis of each pair of texts did not aim at distinguishing the better translation – Ukrainian or Russian. However, as to the functional and communicative equivalence of the original and its translations (in selected translation samples), as well as the translation devices used to reach this equivalence, the following conclusions can be made.

As for the degree of conformity of selected translation techniques, they are generally well-grounded. Both the Ukrainian and the Russian texts contain plenty of acceptable translation decisions that serve the purpose of achieving maximum possible equivalence degree and could be added to one's translation armoury. The analysis shows that the translations of selected fragments of the source text can be classified according to the degree of equivalence into optimum, near optimum and partial, with rare cases of mistranslation and non-translation. The results of our research indicate that absolute equivalence is quite hard to achieve in translating popular science texts.

Thus, through the comparison of the Ukrainian and Russian versions of *The New Digital Age*, we can state that both translations are readable; the translators in general have succeeded in sticking to the target language norms. However, the analysis performed has shown that the functional and communicative *equivalence of the source and target texts is incomplete.* Along with the successful translation strategies, the translated texts need corrections due to semantic and formal losses. And the target audience – both the Ukrainian and the Russian – deserves high-quality translations. The readers are eager to learn about the world science and technology advances in full size, without information losses.

The textual analysis has identified a number of factors that influence translation quality. The first factor is the translators' misuse of translation techniques, such as generalisation, concretisation, modulation, word-for-word

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[77]   Shmidt, E. and Koen, D., *Novyi Tsyfrovyi Svit*, p. 211.
[78]   Shmidt, E. and Koen, D., *Novyi Tsyfrovoi Mir*, p. 228.

translation, etc. The second aspect is the domination of certain methods; for instance, the method of descriptive translation used by the Ukrainian translator, with part of the meaning left unrendered. The third factor is the lack of attention to the details of the original text as well as possible lack of training in translating popular science texts, which is more prominently seen as a characteristic of the translator of the Ukrainian version. Thus, in the analysed text fragments, the degree of equivalence proved to be higher in the Russian version than in the Ukrainian one, the latter having more meaning distortions.

In any translation, there are losses, as its goal is not to convey every word but to recreate the spirit of the original. By and large, the research results indicate that the Ukrainian and Russian translators have succeeded in preserving the specific characteristics of popular science writing, recreating the spirit of the original text, conveying the main features of the author's individual style, rendering a wide range of expression. In general, both translations produced identical impact on the source and target text readers. The minor translation mistakes had no considerable effect on the sense of the whole target texts. However, this is just our personal subjective opinion, which does not mark down the general positive work of the Ukrainian and Russian translators. To conclude, it is essential for translators to be aware of problems arising in translating popular science texts and the factors affecting the quality of translations. A translator's task is to find an optimal balance of semantics and form, conveying various types of information to a reader representing a different culture. And such a balance can be achieved by a highly-skilled translator only.

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Olena MYKHAILENKO

MODERN POPULAR SCIENCE TRANSLATIONS: THE NEW DIGITAL AGE

Nowadays, popular science as a genre is becoming increasingly important, drawing a closer relationship between the non-specialist audience and the specialised field of science. New scientific knowledge is being shared worldwide mostly through translations. Keeping this in mind, the translation of popular science writing needs deeper investigation in terms of translation studies as an academic discipline, the quality of translation of popular science texts bearing special significance. In Ukraine, despite the growing numbers of translated publications, most of which are translations from English, the niche of science and popular science literature has not been completed yet. Although the translated popular science texts have received a generally positive response, there is some criticism regarding the accuracy of translations into Ukrainian. This paper highlights the importance of high quality translations of foreign language popular science texts. A particular research interest is taken in the comparison of translations into various languages, including closely related ones, such as Ukrainian and Russian. Our research is based upon the original analysis that aims to establish the degree of translation equivalence of the English language popular science book, *The New Digital Age* by the *Google* founders, Eric Schmidt and Jared Cohen, and its Ukrainian- and Russian-language translations.

Keywords: *popular science text, degree of translation equivalence, English language, Ukrainian language, Russian language, translation strategies, translation devices*