Making language accessible for people with cognitive disabilities: Intellectual disability as a test case

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1 Introduction

Information and communication play a central role in our modern daily lives. An abundance of language-based information is available to us through the internet, the media (newspapers, radio, or television), books, signage and face-to-face interactions. However, this information may not be equally accessible to everyone. For individuals with cognitive disabilities, coping with written or spoken information may pose a considerable challenge, as they often experience difficulties understanding and responding to language presented in these modalities. Thus, people with cognitive disabilities often need to get information in an accessible manner in order to understand it. The lack of accessible information forms a major barrier for their full participation in the community and for their independent functioning in everyday life (Yalon-Chamovitz, 2009, Collier, Blackstone and Taylor, 2012).

To get a sense of what is involved in coping with inaccessible information, try to recall the helplessness you must have felt when trying to find your way around in a foreign country without speaking the local language, when struggling to navigate through a complicated interactive voice menu, or to understand the terms and conditions of a standard rental agreement. Frustration often increases at the face of legal, financial or medical information written in a highly professional language, using jargon, abstract expressions, complicated logical reasoning and complex sentences. These examples, like many others, illustrate the distress one may feel in the absence of proper communication or in the lack of clear and accessible information.

The present paper provides a state-of-the-art overview of the current situation regarding information and language accessibility for individuals with cognitive disabilities in Israel, zooming in on a major sub-group within this range – persons with intellectual disabilities. We outline the major language accessibility guidelines for this sub-group, and demonstrate their implementation, pointing out dilemmas along the way. The guidelines are set to reduce structural complexity, while maintaining semantic content, yielding information that is clear, comprehensible and adapted to the needs, world-knowledge and linguistic proficiency of persons with intellectual disabilities (Uziel-Karl, Tenne-Rinde and Yalon-Chamovitz, 2011).

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The past three decades have been characterized by dramatic social and constitutional changes in the realm of accessibility, mainly as a result of social demand for equal rights for people with disabilities. Consequently, most equal rights laws include sections that emphasize accessibility as a significant enabler of participation (Yalon-Chamovitz, 2009). Moreover, policy-makers world-wide have recognized the need for making information accessible for people with disabilities and acted to ensure this right via legislation, regulations and international treaties. In 1990, the United States enacted the *Americans with Disabilities Act [ADA]*. This human rights law protects people with disabilities from discrimination and ensures them accessibility and equal opportunities. The law requires that all states in the United States and all local authorities take measures to ensure that their communication with people with disabilities is as effective as with the general public. That is, everything said or written must be clear and understandable to all. Similarly, many Western countries (e.g., Canada, United-kingdom, Ireland, Sweden, Australia and New-Zealand) have developed accessibility guidelines for people with disabilities (e.g., SAIF, 2011). In 2008, the *United Nations Convention on the Rights of Persons with Disabilities* entered into force. The Convention aims to promote, protect and ensure that all persons with disabilities enjoy the full and equal rights and fundamental freedoms, and that their inherent dignity in all realms of life is respected (work, education, health, and more).

The term a*ccessibility* refers to a person's ability to reach a place, to move and orient oneself in that place, to use a service and enjoy it, to receive information and take part in programs and activities in that place, all in an equal, respectable, independent, and safe manner (*Americans With Disabilities Act [ADA]*, 1990; *Israeli Equal Rights for Persons With Disabilities Law – Accessibility Amendment*, 2005).

In Israel, accessibility was first brought to public attention in 1996, when the Supreme Court recognized the right to accessibility for persons with disabilities as part of their right for social integration (Supreme Court Appeal, 1996). The court noted in its ruling that accessibility should not be based on the concept of grace and charity, but on the concept of human rights and equal opportunities. In 1998, Israel enacted the *Equal Rights for People with Disabilities Act*. The purpose of this law is to protect the dignity, freedom and rights of people with disabilities to run their lives independently. The term **negishut** 'accessibility' was defined in the Amendment to the *Equal Rights for People with Disabilities Act* (2005, Amendment No. 2), where reference to accessibility of service and information was first made. The definition aims to ensure that a person with disability will not be excluded because of his disability. "It is not individual limitations, of whatever kind, which are the cause of the problem but society's failure to provide appropriate services and adequately ensure [that] the needs of disabled people are fully taken into account in its social organization" (Oliver 1996:32). Thus, the responsibility for the implementation of the law is bestowed on society as a whole, and in particular, on public service providers (Feldman, Danieli-Lahav and Haimovitz, 2007). On March 31, 2007 Israel signed the

UN Convention on the Rights of Persons with Disabilities, and ratified it on September 28th, 2012. The convention lists the measures that should be taken in order to enable people with disabilities to live independently and to fully participate in all aspects of life. These measures include: identification of obstacles and barriers to accessibility and disabling them, developing and formulating standards and guidelines for accessibility and monitoring their implementation, initiating and promoting research, developing new technologies and promoting design for all (Universal Design – UD). In April 2013, the *Regulations for the Equal Rights for People with Disabilities* were enacted (to include service accessibility). These regulations place great emphasis on the accessibility of information and communication in the public service. They require the adaptation of practices and procedures of the service, and the provision of means and auxiliary services to enable a person to obtain information given or produced in a place, or to participate in programs and activities that take place in it (*Regulations for Accessibility of Service*, 2013, section 29). Accessibility to information is also currently discussed in a revision of the Israeli standard dealing with access to the media (*Israeli Standard* 1918, Part 4, The Standards Institution of Israel, 2015). Consequently, all public and private service providers will be required to meet the standard (Israeli Standard 1918, Part 4, 2015), the regulations and the law, as applicable.

2 Cognitive disabilities, intellectual disability

In the International Classification of Functioning, Disability and Health [ICF] (2001) **disability** is defined as a multi-dimensional concept relating to functions and structures of the human body, people's activities and the life areas in which they participate, and factors in their environment that affect these experiences. Within this framework, a person's disability is conceived as the dynamic interaction between health conditions, environmental and personal factors. Disabilities may be physical or motor, sensory (e.g., visual or hearing impairments), cognitive or developmental, mental or psycho-social. A person may have one or multiple disabilities.

The term ***cognitive disabilities*** refers to a broad range of clinical diagnoses (which may be inherited, congenital, developmental or acquired) that may impair one's ability to perform certain cognitive functions (Carmien et al., 2005). Among these are autism, intellectual disabilities, mental health disabilities, traumatic brain injury, dementia, as well as Attention Deficit Disorder [ADD], Complex Learning Difficulties and Disabilities (CLDD) and others. Persons with cognitive disabilities may experience memory and attention deficits, language comprehension difficulties, difficulties with solving problems, concentrating on a task, understanding inference, understanding abstract or metaphorical content, distinguishing important from peripheral information, and reading; additional difficulties may include way-finding, math comprehension and

visual comprehension. Consequently, these difficulties affect their ability to receive, to process and to produce information successfully.

Intellectual disability is a developmental cognitive disability. In the Welfare Law (1969), a person with intellectual disability is defined as "a person who, due to lack of development or poor development of his mental capacity, has limited ability for adaptive behavior and is in need of care". But the actual assessment and assignment of intellectual disability in Israel today, adopted by the Division for Intellectual and Developmental Disabilities of the Ministry of Social Affairs and Social Services, is largely based on the definition of the American Association on Intellectual and Developmental Disabilities [AAIDD] (Schalock *et al.*, 2010):

"*Intellectual disability is a disability characterized by significant limitations both in **intellectual functioning** (reasoning, learning, problem solving) and in **adaptive behavior** (a range of everyday social and practical skills). This disability originates before the age of 18*".

2.1 Language skills of people with intellectual disabilities

Research has shown that persons with intellectual disabilities may experience diverse cognitive difficulties, among which are difficulties in long and short term memory which can affect their ability to acquire complex linguistic structures and to expand their vocabulary; difficulties with cognitive processes such as reasoning, symbolization, generalization and abstraction, understanding concepts like time and quantity and understanding idiomatic or multiple-meaning expressions (Harris, 2006; Rhea, 2004). The vocabulary of persons with intellectual disability consists mostly of concrete nouns and verbs, and includes only a small set of descriptive words such as adjectives and adverbs (Yoder and Warren, 2004). They tend to generate short, simple sentences. They may find it difficult to produce and understand passive sentences (e.g., *the book was written by Danny*), sentences with non-canonical word-order (e.g., *out jumped the rabbit = The rabbit jumped out*), conditional sentences (e.g., *if it rains, I will not go for a walk*), and complex sentences with relative clauses (e.g., *the man [that [Danny met]] is a famous actor*), or embedded clauses (e.g., *Danny thought [that [tomorrow I will buy him another book]]*) (Zukowski, 2004).

Additional challenges that might impair the linguistic and communicative abilities of persons with intellectual disability include **pace**, **complexity**, **literacy**, and **stigma** (Yalon-Chamovitz, 2009):

- **Pace**: People with intellectual disabilities show relatively slow processing and reaction time in many different tasks (for a review, see Kail, 2000). Therefore, pace accommodations should be applied both to environmental design and procedures of service provision, e.g. provide instructions at a slower pace, allow more time to complete activities, etc. (Yalon-Chamovitz, 2007, 2009:396).

- **Complexity**: people with intellectual disabilities often experience difficulties in verbal communication, in way-finding in the physical and virtual environment, in understanding and following product-operating instructions and in coping with procedures. Thus, it is recommended that the procedures and language be simplified to accommodate their needs, e.g., maps, clear design that facilitates orientation, simple operating instructions, etc.
- **Literacy**: Literacy is an important means for independent functioning, and for improving the quality of life of people with intellectual disability (Downing, 2005; Shengross, 2011). People with intellectual disabilities often exemplify low literacy level, and many of them experience difficulties reading simple texts (Yong *et al.* 2004). A survey conducted by the U.S. Department of Education in the 90's found that 87% of the Americans with intellectual disability are at the lowest literacy level (Irwin *et. al.*, 1993, Cohen *et al.*, 2001). People with intellectual disability may also experience difficulties receiving and integrating information, organizing knowledge and planning agenda, which might increase the need to receive external support on a daily basis in order to perform tasks that require literacy skills, thus damaging a person's self-esteem and his or her sense of competence. This may lead people with intellectual disabilities to avoid challenging experiences which could improve their skills for full participation in the community. The recommended accommodations in this case are easy-to-read language and the use of graphic representation of information (Salmi, Ginthner, and Guerin, 2004).
- **Stigma**: is perhaps the predominant barrier to accessibility. Despite rights granted by legislation, in practice, people with intellectual disabilities cannot actively claim or implement their rights. They are often still treated as patients or people in need of protection, and are expected to be escorted or supervised when accessing community programs and services. Although this might be appropriate for some, the range of functional abilities and support needs of people with intellectual disabilities is very wide (Luckasson et al., 2002), and many could function independently given appropriate accommodations. To remove stigma, it is necessary to increase awareness to accessibility needs of people with intellectual disabilities and provide practical guidelines for the provision of accessible, equal, and respectful service to all (Yalon-Chamovitz, 2009:398).

2.2 Linguistic accessibility for persons with intellectual disability

Access to information is one of the most important accommodations for people with intellectual disabilities. As part of the general effort to develop the body of knowledge and means to help implement regulations concerning information accessibility, the Division for Intellectual and Developmental Disabilities of the Ministry of Social Affairs and Social Services recently published a set of guidelines (Uziel-Karl, Tenne-Rinde and Yalon-Chamovitz, 2011). These guidelines form the basis for the definition of ***linguistic simplification*** in the Regulations for Accessibility of Service (2013), and

are a product of comprehensive applied research on language accessibility for individuals with intellectual disability sponsored by the Ministry. The guidelines are intended to direct service providers and professionals in the preparation and production of accessible materials for persons with intellectual disabilities.

Linguistic accessibility refers to the process of adapting written or spoken information to the needs of people with disabilities in order to make it clear, understandable and inviting for them, using diverse linguistic and sensory means (i.e., visual, audio or tactile). Visual means rely on sight for communication and transmission of information (e.g., accessible print and symbols). **Audio means** rely on hearing for communication and transmission of information (e.g., screen readers, public address systems). **Tactile means** rely on touch to communicate and transfer information (e.g., embossed signs, maps). The outcome of this process is accessible information adapted to the needs of the target audience.

The process of making information linguistically accessible to persons with intellectual disabilities consists of three main phases: (1) **Planning** – a preparatory phase which includes formulating ideas, selecting the mode of information transfer (spoken or written) and the appropriate means of delivering the message to the target audience; (2) **implementation –** adapting various linguistic aspects of the message to the needs of the target audience (e.g., vocabulary, sentence structure). This process is also known as *easy-to-read* or *language simplification*; Printed easy-to-read materials are marked as such with a designated symbol and caption to allow easy identification (see Figure 1)[1]; (3) **Quality assurance –** ensures that the simplified information suits the needs of the target population.

מסמך בפישוט לשוני

Figure 1: Easy-to-Read (simple language) Symbol

Language simplification can be performed at different levels. ***Easy-to-read language*** should be distinguished from ***Plain language***. The latter constitutes an intermediate level between non-simplified, expert language and ***easy-to-read (simple) language***. It is defined as everyday language, a language that the lay person can understand, with no jargon or professional terms. Yet, it is not sufficiently adapted to the needs of persons with intellectual disabilities as described above.

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1 This symbol is based on the EU easy-to-read symbol. It is currently considered for inclusion in the revision of the *Israeli standard* 1918, part 4.

Table 1: Key simplification guidelines

Category	Guidelines
Content Plan what you want to say	Present only necessary and important information Present the information in a logical sequence, one step at a time Express only one main idea per sentence Use respectful language Use adult language when addressing adults Do not assume previous knowledge about your subject
Structure Adapt the language to the needs of the target audience (vocabulary and sentence structure)	Use only words that are common in the everyday language of persons with intellectual disability Avoid jargon, foreign words or abbreviations Avoid abstract words Explain difficult words and give examples Refrain from using metaphors and uncommon figures of speech Be consistent in the way you use words to refer to particular objects or concepts Use active rather than passive verbs Make direct reference to your audience using pronouns such as "you" and "we" Otherwise, prefer lexical noun phrases over pronouns or null subjects Keep sentences short Avoid complex sentences Use positive language
Design Adapt the text layout and design to the needs of the target audience	Divide the text into separate paragraphs Make sure the layout and text-flow support the content of the text Use bullet points when forming a list Use simple punctuation (, . ?) Use digits rather than words to refer to numbers (e.g., '3' instead of 'three') Use symbols to support your text Use matt paper of good quality Use a clear typeface such as Arial Use a large type-size, 16–22 point Make sure there is good contrast between type and paper
Quality Assurance (QA) Check the simplified product	Consult persons with intellectual disability on whether the simplified product is clear and understandable to them

Language simplification requires adjustment of the content, structure and design (for written information only) of the original message. Table 1 lists the major guidelines for language simplification in each one of these domains.

To illustrate language simplification in action, compare the compound "aquatic insects" with its simplified counterpart "water bugs". In this example the Latinate denominal adjective (aquatic) and noun (insects), were replaced by the everyday English words of Germanic origin – "water" and "bugs" to yield "water bugs", in accordance with the requirement (in Table 1) to use common, familiar vocabulary.

– **Content**: The number of ideas expressed in a text determine its level of complexity. Paragraphs which contain sentences with multiple abstract ideas are hard to remember and to understand (Haramati, 1991). To make information accessible to individuals with intellectual disabilities, it is essential to reduce information density (express one idea per sentence, delete information that does not contribute directly to understanding the main ideas), to focus on a small number of main ideas and to fill in pragmatic and logical gaps (e.g. *unlock the door* vs. *to unlock the door, do the following: 1. Insert the key in the keyhole, 2. Turn the key to the left*). It is also necessary to reduce stylistic density (e.g. refrain from using high register words) and to use examples and explanations to facilitate understanding. Additional guidelines relating to content are listed in Table 1.

– **Structure**: to adapt the vocabulary of a message to individuals with intellectual disabilities, it is necessary to reduce vocabulary density, to use common familiar words and to ensure consistency in word usage throughout the message. It is necessary to keep to a minimum the use of constructions like conditionals (*if the weather is good, we'll go swimming*), modals (*I must read this book*), double negation (*not allowed not to testify*), and clefts (*it is Dan who won the game*). As for sentence structure, the longer the sentence, the more likely it is to be syntactically complex, and the harder it is to follow, to remember and to understand. Thus, complex and compound sentences should be broken down into simple sentences (one subject and one predicate per sentence), and should follow canonical word order (subject-verb-object). Additional guidelines are listed in Table 1.

– **Design** (written information): Visual means are often necessary and extremely helpful in supporting written information e.g., accessible print, clear headers, spaces between paragraphs and symbols (Nir, 1989). The use of accessible page layout, print and symbols to support a written message is illustrated in Figure 2.

As shown in Figure 2, various visual and graphic elements can be used to enhance the accessibility of a message: (1) The header, distinctly marked (bold, underline), gives a clear idea of the topic; (2) Line spacing and numbering allow the reader to follow the sequence of actions and their relative ordering more easily, provided the order is significant; (3) Large and readable font (Arial 16) and black print over white
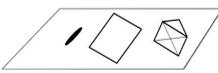
How to write a letter?

1. Prepare a pen, a sheet of paper and an envelope.	
2. Write the letter on the sheet of paper.	
3. Carefully fold the letter in two.	
4. Put the letter in an envelope.	
5. Seal (close) the envelope.	

Figure 2: Writing a letter

background allow the reader to focus on the written message with no distractions. Font size may also facilitate reading for individuals who are visually impaired (Regulations for the Equal Rights for People with Disabilities, Accessibility of Service, chapter 1: 968 – Accessible Print, 2013); (4) Symbols, defined as clear and simple graphic representations of information delivered to the public (the *Regulations for Equal Rights for People with Disabilities, Access to Service, 2013*), enable individuals whose reading ability is not sufficient or functional, or who cannot read or write, to figure out the content of the message without having to fully read it. Why symbols? Individuals with intellectual disabilities tend to think very concretely, so that using a photograph of an object or a person might be interpreted as referring only to that specific object or person. To avoid association with specific objects or people, symbols are schematic; they are black and white to avoid dependence on colors for their interpretation (which might be problematic in photocopying or for individuals who are color blind, for example). Conventional symbols are universally acceptable, and are created according to an obligatory set of requirements set in the international ISO standards of graphic symbols [ISO 7001]. Symbols are placed to the right of the message in languages like English (read from left to right), or to the left of the message in Semitic languages like Hebrew (read from right to left), to enable reading with the aid of electronic reading devices.

–   **Quality assurance (QA)**: is an important step in the simplification process. This step is designed to make sure the simplified information meets the needs of the target population. QA is not necessarily limited to the end product, but can be performed throughout the simplification process. Since the simplified information is intended for individuals with intellectual disabilities, it is important that members of this target group check whether they comprehend the simplified content.

Note that while some easy-to-read guidelines are universal and may be shared cross-linguistically (e.g. use simple sentences), others are not, and should be adapted to a particular language, culture or locale. Since the present paper reviews the situation of language accessibility for persons with intellectual disability in Israel, the following examples of language simplification are from Hebrew (Tables 2–3 below).

A Semitic language like Hebrew with a dense morphology makes use of morphological structure in most lexical classes, with diverse systems to express different classes of inflection and derivation (Berman, 1978; Bolozky, 2007; Schwarzwald, 2001, 2002). Nouns, adjectives, verbs, and even prepositions are heavily inflected and demonstrate rich and complex allomorphy. The opacity of the system and its complexity pose special challenges for Hebrew-speaking individuals with intellectual disability. To make the necessary adaptations, language specific simplification guidelines were formulated. Consider the following specific examples:

–   **Possession**: Hebrew marks possession in one of two ways – analytically, by using the possessive particle *shel* 'of' [*ha-sefer shel ha-yeled* 'the book of the boy'] and synthetically, by attaching an inflectional suffix to a noun [*sifr-o* 'the-boy's-book']. The former option is more transparent than the latter, and structurally invariant and so should be preferred: To express possession, prefer analytic to bound forms (Dekel, 2014).

–   **Null subjects**: Null subjects are morphologically licensed by Hebrew verbs in past and future tense, 1st and 2nd person (e.g., *halaxnu la-avoda* 'went-1-PL to work'), as the missing subject can be reconstructed from the inflectional affixes on the verb (*-nu* '1-PL-PAST). Yet, individuals with intellectual disabilities find sentences with null subjects harder to process. Thus, overt subjects should be preferred: Use overt subjects (e.g., *anaxnu halaxnu* 'we went-1-PL').

–   **Gender**: Hebrew overtly marks grammatical gender on nouns, verbs, adjectives, prepositions and pronouns. Thus, a message addressed to males and females requires using both feminine and masculine forms. This creates an overload for persons with intellectual disabilities. Moreover, in formal documents, both forms are often listed using a "/" separator (e.g., *kax/kxi* 'take-MS/take-FM' or *kax/i* 'take-MS/FM'). This creates additional cognitive burden. To overcome this: Use the imperative in the plural form (e.g., *kxu* 'take-PL'), or the infinitive form (e.g., *lakaxat* 'to take'). Alternatively, create two separate gender-oriented versions of the message.

- **Homography**: Hebrew has two orthographic versions, pointed and non-pointed, differing in the amount of phonological information they supply to readers. In the deep non-pointed orthography, consonants are fully represented, but vowels are only partially and ambiguously represented, resulting in pervasive homography that challenges readers. For example, the written string חומה "ḤWMH" which does not represent vowels overtly, may be read as */xoma/* 'wall' or */xuma/* 'brown' (Bar-On and Ravid, 2011; Ravid, 2012). To facilitate the understanding of homographic words, it is recommended that these words be used with *nikud* "pointing" diacritics, which supply full information about vocalization. Contextual clues in the form of examples or explanations may also be provided.

To illustrate the implementation of the easy-to-read guidelines in Hebrew, consider the following example. Tables 2 and 3 present two versions of an excerpt from the *UN Convention for the Rights of People with Disabilities (2006)* – the original text (Table 2) and an easy-to-read version of the same excerpt (Table 3), both accompanied by a Hebrew translation.

Table 2: Original non-simplified text

Article 9	9 סעיף
Accessibility	נגישות
To enable persons with disabilities to live independently and participate fully in all aspects of life, States Parties shall take appropriate measures to ensure to persons with disabilities access, on an equal basis with others, to the physical environment, to transportation, to information and communications, including information and communications technologies and systems, to other facilities and services open or provided to the public, both in urban and in rural areas.	על מנת לאפשר לאנשים עם מוגבלויות לחיות בצורה עצמאית ולהשתתף באופן מלא בכל היבטי החיים, תנקוטנה מדינות שהן צדדים אמצעים הולמים כדי להבטיח לאנשים עם מוגבלויות גישה לסביבה הפיזית, לתחבורה, למידע ולתקשורת, לרבות לטכנולוגיות ומערכות מידע ותקשורת, ולמתקנים ושירותים אחרים הפתוחים או ניתנים לציבור, באזורים עירוניים וכפריים כאחד, בשוויון עם אחרים.

Table 3: An Easy-to-Read version

Accessibility	נגישות
The states that take part (in the agreement) will do everything to give people with disabilities access (possibility to get and use): • a place • transportation (bus, train, car) • information and to tools for getting information • facilities and other services for the public This will enable people with disabilities • to live independently • to participate in all the activities in their community like any other person	המדינות השותפות (להסכם) יעשו כל מה שצריך כדי לתת לאנשים עם מוגבלויות **נגישות** (אפשרות להגיע להשתמש): • במקום • בתחבורה (אוטובוס, רכבת, מכונית) • במידע ולכלים לקבלת מידע • במתקנים ושירותים אחרים לציבור (לכולם) זה יעזור לאנשים עם מוגבלויות: • לנהל את החיים שלהם בעצמם • להשתתף בפעילויות בקהילה כמו כל אדם אחר

The original text (Table 2) consists of a single, complex, multi-clausal sentence. In the simplified version, this sentence is divided into smaller units (phrases). The order of presentation of the purpose and action clauses in the original text is reversed to match the default order [main clause – adjunct] and the logical order of cause and effect. Explanations of unfamiliar words and examples are given in parentheses, e.g. *taxbura (otobus, rakevet, mexonit)* 'transportation (bus, train, car)', *tsibur* (everbody) 'public', *atsma'it* 'independently', etc. High register words like *holmim* 'appropriate', *sviva fizit* 'physical environment', *texnologya* 'technology' and others are replaced or eliminated. Similarly, construct state *hebetey ha-xayim* 'aspects of life', passive verbs *nitanim* 'given', richly inflected verbs *tinkotna* 'will-take-3-PL-FM measures' and adjectives *kafriyim* 'rural-PL-MS', *ironiyim* 'urban-PL-MS' are substituted or deleted in the simplified version. Source or possession is marked analytically (*bli ezra **shel** anashim axerim* 'without the help **of** other people', *nihul ha-xayim **shelahem*** 'managing their own lives') rather than synthetically (*ezratam* 'help-theirs = their help', *xayehem* 'lives-theirs = their lives') (see discussion above). Finally, the layout of the text is modified to facilitate understanding. For example, each sentence or phrase is presented on a separate line; list items that appear in the original text as concatenated phrases separated by commas, are listed on separate lines and marked by bullet points for easy detection.

The examples discussed so far, related to the simplification of written information; but a lot of information is delivered to the public orally, in face-to-face interactions or through the media. This type of information should also be accessible to persons with intellectual disabilities. For example, a person requesting medical care may receive an explanation from the doctor about his medical condition, the treatment and the medications that he needs to take. In order for that person to understand the doctor's instructions, these instructions should be conveyed at a slow pace, and be clearly articulated. The speaker should use short sentences and familiar vocabulary. To refer to discourse entities, lexical NPs should be used, as well as repetitions and clarification questions to ensure understanding. When giving information to a person with intellectual disability, the speaker should address the person with the disability himself and not his companion.

In addition to language simplification, it is important to simplify the procedures of service provision. For example, when navigating through an interactive voice menu, the navigation procedure should be limited to a small number of chronologically ordered steps, an option to receive help at any point in the process, an option to talk to a human responder, sufficient time to select an option and to press the right button, a possibility to go back to a previous option in the menu, etc. Such accommodations will increase the feeling of control that a person with disability has over his actions and will reduce anxiety, consequently, affecting the level of his or her cooperation with the service provider.

3 Conclusion

The advent of the *Regulations for Accessibility of Service (2013)*, increased the need for linguistic accessibility, i.e., adapting the information delivered to people with disabilities when providing service. This need is reinforced when the information is abstract, complex or highly professional.

Language Accessibility is a tool for mediating different content worlds – professional terminology and everyday language. Given accessible or simplified information, the person who receives the service is able to fully understand what is required of him and to make thoughtful decisions. The ability to understand what is said or written, and to be a true partner in a conversation or a process, gives people a sense of security and control over their lives, let alone people with disabilities.

Yet, language simplification poses numerous dilemmas for language editors or authors engaged in this process, some of which are listed here: (1) an oversimplified message might seem childish and inappropriate for adults with intellectual disability whereas an under-simplified message would miss its goal. What is the appropriate balance between language simplification and language "lowering"? (2) Simplified information might keep the language of individuals with intellectual disability stagnant, rather than enrich and develop it, as it should. How can we simplify information in a way that would encourage the development of linguistic abilities and knowledge in individuals with intellectual disability? (3) Persons with intellectual disability exhibit heterogeneous functional and linguistic abilities. How can a simplified message be made to suit the needs of as many people in the target audience as possible? (4) A different kind of dilemma is how to remain faithful to the original message throughout the simplification process; (5) Still other dilemmas have to do with the legal aspects of language simplification, e.g., what is the legal validity of simplified documents (e.g., medical informed consent forms or legal contracts), and who owns the copy rights for simplified materials? (Uziel-Karl, Tenne-Rinde and Yalon-Chamovitz, 2016).

The process of language accessibility is complex, and requires professional expertise, as well as familiarity with the relevant content areas and the relevant target groups. Nonetheless, it is a well structured process backed by the Service Accessibility Regulations (2013). It combines linguistic simplification and auxiliary or alternative means for providing accessible information to the service recipient as well as monitoring the simplification process and the coherence of the outcome for people with disabilities. It is, thus, recommended that simplification be done by "an expert in language simplification who has knowledge of the subject matter and is familiar with the needs of the target audience". Likewise, symbols should be designed by professionals with specific expertise in accessible graphic design. It is also recommended that the outcome be reviewed by an expert as well as by a person with intellectual disability, to ensure its appropriateness for the target audience.

Accessibility could make the difference between a person who cannot deal with the authorities and services and a person who is an independent, active participant in the community. Thus, despite its complexity and the many issues involved, it is important to remember that the products of language accessibility may considerably improve the quality of life of persons with intellectual disability, but not just theirs – we may all benefit from clear and accessible information.

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