AAC Language Resources in the Mainstream

Introduction:

The importance of establishing preconditions for inclusion and full participation in education and the social environment in general for users in need of AAC has steadily become a more widely shared awareness and aim of current work in the field of Augmentative and Alternative Communication (AAC).

The application of AAC in more inclusive settings has also inspired a growing awareness of the relevance and potential for AAC methodology and resources for much wider application than traditionally, i.e., not only for the small group of persons with "complex communication needs". In fact, the desperate need for, and challenges of, communication in modern global society, together with the emphasis of access to communication as a fundamental aspect of human rights, call for a radically new and wider approach to AAC (Blackstone, 2013, Lundälv et. al., 2013)

In order to provide language support to individuals requiring AAC, we need linguistic resources suitably organized and represented, e.g., sign language material, symbol and image libraries suitable for multiple cognitive levels, as well as textual support in many languages. So far, these resources have been developed and maintained in separate and uncoordinated efforts, either by commercial or non-profit actors, and targeting different specific groups and needs. In the long run, this is a non-inclusive, ineffective and expensive way of proceeding, leading to limited benefit for AAC users and stake-holders, as well as for potential wider application.

On the contrary, the aim must be to ensure the widest and smoothest possible availability of language resources to support communication for all in today's multilingual and multicultural global society, increasingly dependent on Information and Communication Technology (ICT). These resources need to be not only multilingual, but also multi-modal, i.e., offering a range of representations in text, speech, graphic symbols and signing. This means using typical AAC resources, but unlike until now, in combination and full integration with the best of current language technologies. Furthermore, to fulfil the rights and needs of all potential beneficiaries across socio-cultural barriers, such resources must be fundamentally free – free as in Freedom of Speech. All communicators, including AAC users, should demand and expect to be in full and free possession of the words they need to communicate, regardless of representation form. Dependencies on proprietary, and restrictively licensed symbol libraries are in the end in deep conflict with the rights of all to communicate.

What needs and can be done:

Building on the experiences and results from the European AEGIS project in this area (Lundälv et. al., 2013, 2012), DART, Blissymbolics Communication International (BCI 2013) and allies among developers and researchers are now busy investigating a number of tracks to follow for approaching the previously outlined goals:

- The Concept Coding Framework (CCF 2013) technology for cross-linking and delivering several lexical resources and symbol libraries – currently Blissymbolics (www.blissymbolics.org) and ARASAAC (www.catedu.es/arasaac/) – is maintained by DART and independent technical consultants and developers.
- BCI, DART and researchers at GU/CTH are connecting and integrating free AAC resources with free lexical and grammatical resources at Språkbanken (the Swedish Language Bank) and Centre for Language Technology (CLT). This includes:
    - The Blissymbolics lexicon is being converted into a standardised machine readable format, and programming libraries are being developed, so that existing software can more easily make use of Blissymbolics for presentation.
    - Preparations have started for integrating the Blissymbolics lexicon and the CCF technology with the Karp lexicon collection at Språkbanken according to lexical

standards and requirements for Open Linked Data resources (Borin et. al. 2012, ISO 2008).
    - The Blissymbolics grammar is being formalized as a part of the Grammatical Framework multilingual resource grammar (Ranta 2009). There is ongoing research on how the lexical and grammatical resources can be used for interesting new AAC applications (Ljunglöf 2011).
- BCI, together with DART, ISAAC Sweden and other partners, are proceeding in the work of encoding Blissymbolics into a standardised Unicode font, allowing full use in standard text environments.

Results:

A range of results, in terms of vocabulary resources and applications, are gradually appearing and developing as a result of the long term efforts around the Concept Coding Framework, and in relation to the cooperation and integration with the general language technology resources at CLT and Språkbanken. These comprise:

- Further structuring and development of the Blissymbol vocabulary resources in preparation for a standardised Unicode font (BCI 2013)
- Refined versions of the CCF databases, APIs and applications:
    - CCF-SymbolServer
    - CCF-SymbolWriter
    - CCF-SymbolDroid
- A range of prototypes and planned further integration of Blissymbol and CCF resources with the Grammatical Framework (Ljunglöf 2013) and Karp lexicons of Språkbanken (Borin 2013)
- Free programming libraries that make it easier for developers to improve the accessibility of existing applications and web services, by simplifying the rendering of Blissymbolics and AAC symbols in general.

Conclusions:

Language technology developments are by nature long-term investments. Substantial work and resources are still needed to achieve a situation where a fair amount of current free AAC vocabulary resources have become conveniently available as part of a general lexical and language technology infrastructure. New efforts are planned and funding is being applied for in a promising cooperation between the partners listed in this presentation, and several others. More are encouraged to come on-board, and will be needed for a widening coverage of natural languages.

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CCF 2013 - Concept Coding Framework – www.conceptcoding.org

BCI 2013 – Blissymbolics Communication International – www.blissymbolics.org