WHAT'S NEW IN SIGNSTREAM® 3.4.0 ?

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1   Introduction

SignStream® version 3.4.0 is a substantial upgrade relative to the last public release from July 2020 (version 3.3.1). There are many bug fixes, new features, and interface enhancements.

The major improvements are described in this document. We are grateful to the developers at the Rutgers University Laboratory for Computer Science Research (LCSR) who have implemented these changes (Gregory Dimitriadis, James Felice), and to Douglas Motto, application developer supervisor. This work has been partially funded by NSF grants to Rutgers and Boston Universities (#2040638, 17634866, 1763523).

2   System Requirements

Operating Systems:

- macOS Monterey (12), Big Sur (11), Catalina (10.15), or Mojave (10.14), High Sierra (10.13), Sierra (10.12), or El Capitan (10.11).

Hardware:

- Mac computer with 64-bit Intel or ARM (Apple Silicon) processor

  Note that SignStream® 3.0.4 has not yet been extensively tested with the new ARM hardware. There may be some differences in how the program works with this hardware.

- 2 GB of RAM
- 250 MB of hard drive space

3   Installation Instructions

There has been some change in the instructions for installation. **Please follow the directions carefully, based on your circumstances:**

- If you want to upgrade from an earlier version of SignStream®, please **go to Section 3.1.**

- If you want to install a fresh, new, version of SignStream® 3.4.0, please **skip to Section 3.2**.

3.1   Upgrading from an earlier version of SignStream®

If you are using an earlier version of SignStream® and wish to update to the latest version on the same (Intel) computer, please **do not** invoke update option from the Help menu within the version of the application you have been using. (The upgrade process has been modified recently.)

You have two options to upgrade **in such a way as to preserve local files**. You can either 1) download version 3.4.0 from the main SignStream 3 download page (as explained in **Section 3.2**), and then manually copy over local files from your previous SignStream folder, as explained in **Section 3.3**; *or* 2) follow this procedure to use the upgrade patch[1]:

Using the Upgrade patch

While the SignStream® application is **not** running, you should do the following:

1) Download this zipfile, and take note of the folder where it downloads:

   http://dai.cs.rutgers.edu/SignStream/download/release/patches/3_4_0_UpgradeSignStream.zip

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[1] Note that this upgrade procedure may run into problems if you have QuarkXpress installed. If an error is reported, please follow the instructions in the next subsection instead.

2) Mac OS will probably unzip the file automatically and create a folder of the same name: "**3_4_0_Upgrade_SignStream**." If not, you can unzip it by double-clicking on the zip file.

3) Within this folder are two files:

- **DisableQuarantine.command**

- **3_3_0_UpgradeSignStream.command**

4) From the Finder, copy the two files directly into the top level of your existing SignStream3 folder, i.e., the folder containing the version of SignStream that you would like to update.

5) Launch "**DisableQuarantine.command**" by double-clicking (or alternatively Command-Click to get the contextual menu from which you select OPEN).

[Note: This is *different* from the DisableQuarantine.**scpt** that is also in that folder.]

- You may get a message asking if you want to open the file even though it is from an unidentified developer. If so, say YES.

- If you get a message that the file cannot be opened because it is from an unidentified developer:
  a. Go into System Preferences > Security & Privacy > General
  b. Under the section "Allow apps downloaded from" click "Open Anyway" for this file.

This will open in the Terminal application and run immediately. It has completed when, at the bottom, it says "Process completed." The window can then be closed.

6) Next, launch the **3_4_0_UpgradeSignStream.command** by double-clicking (or alternatively Command-Click to get the contextual menu from which you select OPEN).
   - o This will also open and run in Terminal. This will launch the installation process to for version 3.4.0, going through a series of steps. Some questions (requiring a yes/no response) will be asked in the process.
   - o The entire installation may take up to 5 minutes or longer.
   - o Afterwards your renamed "SignStream3" directory is now running version 3.4.0

You can skip ahead to Section 4.

3.2   Fresh installation

3.2.1 Download

Download the application from: **http://www.bu.edu/asllrp/SignStream/3/download-newSS.html.** Unzip the "SignStream3-latest.zip" file that will have been downloaded. That will create a folder called "SignStream3". You can move the whole folder to your desired location, **but do not move files out from within that folder**. Before launching the application, you must complete the steps outlined below.

3.2.2 Actions that must be taken before launching SignStream® for the first time

Before launching the application from within that folder:

1) You will need to allow the launch of the SignStream® application, despite the fact that it is not provided by Apple or certified developers (to get around security features that have been implemented in Mac Operating Systems since OS 8; **otherwise you will get an error message saying that the file is damaged and cannot be opened!**).

2) You will also be offered the opportunity to download the latest Sign Bank, which consists of a repertoire of signs, with gloss labels and annotations of other properties, as well as images and video illustration of those signs, to assist in the process of annotating new video files. This Global Sign Bank is not required for use of SignStream®. If you download the Sign Bank, you are agreeing to the terms of use below (which will also be downloaded to your SignStream folder).

Open a Finder window, and double-click on the SignStream folder (the folder you downloaded, which includes the application and related files). Do the following, in the order listed:

1) [**Required**] You will see a file called "**DisableQuarantine.command**". Double-click on that. You may get a message asking if you want to open the file even though it is from an unidentified developer. If so, say YES. If you get a message that the file cannot be opened because it is from an unidentified developer:

      a. Go into System Preferences > Security & Privacy > General

      b. Under the section "Allow apps downloaded from" click "Open Anyway" for this file.
         This will open in the Terminal application and run immediately, then close itself when finished.

2) [**Optional**] If you wish to download the ASLLRP Global Sign Bank, double-click on "GetSignBank.command". You will be asked whether you wish to download the Sign Bank and agree to abide by the terms of use. If you click 'yes', the download of the ASLLRP Sign Bank materials (and Sign Bank terms of use) will commence. Close the Terminal window.

> **Note: It is extremely important to be using the most current version of the Sign Bank**. New versions of the Sign Bank will be released in the future, and SignStream® will download new versions as they become available (alerting the user that this is to happen; see next section).

You will then be ready to launch SignStream® by double-clicking on the "SignStream3" file. **Do not move this file out of its enclosing folder.**

The first time you click on the SignStream® application on **ARM hardware**, you will be asked to install Rosetta (which emulates the Intel instruction set), if it is not already installed. Click "Install" if asked. Once that is done, double-click again on the SignStream® application to launch it.
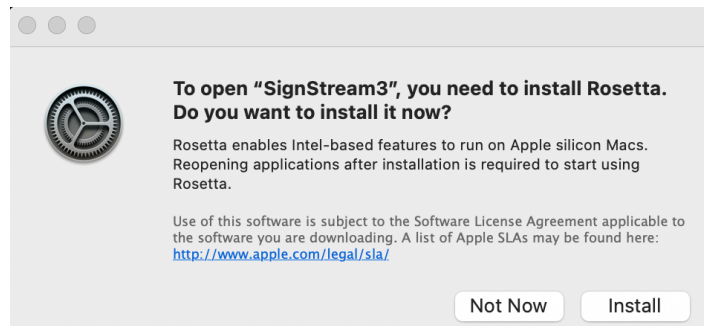

To open "SignStream3", you need to install Rosetta. Do you want to install it now?

Rosetta enables Intel-based features to run on Apple silicon Macs. Reopening applications after installation is required to start using Rosetta.

Use of this software is subject to the Software License Agreement applicable to the software you are downloading. A list of Apple SLAs may be found here: http://www.apple.com/legal/sla/

Not Now   Install

Figure 1. Installing Rosetta

You can skip ahead to Section 4 unless you are upgrading from a previous version. If you have never used SignStream® before and have no collections created with older versions of SignStream®, you can skip ahead to **Section 5.**

3.3 If you do a fresh install of SignStream® 3.4.0 and wish to manually copy local files from a prior SignStream® folder

Figure 2. Local files to be preserved from older versions of SignStream®
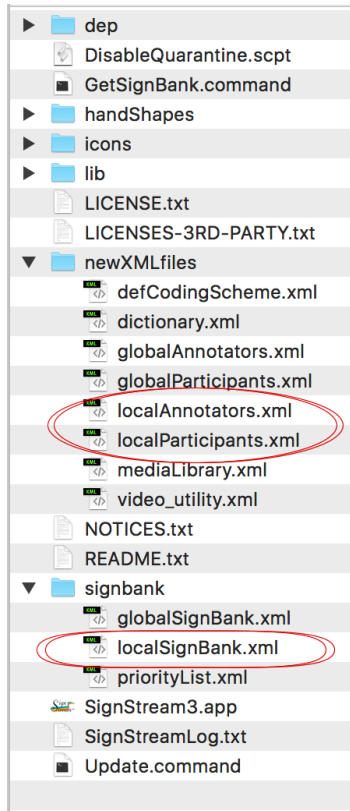
You should follow the instructions in Section 3.2, but be careful to deploy the new package to a new directory distinct from your previous SignStream directory. Then copy the following files over from your old directory to the new SignStream directory (see Figure 1) to overwrite the previous files:

- signbank/localSignBank.xml
- newXMLfiles/localAnnotators.xml
- newXMLfiles/localParticipants.xml

4 Change in File Format

Starting with this release, SignStream® files will be saved with a .ssc (rather than .ss3) file extension. One consequence of the change in file structure is that when you initially open a SignStream collection created with an earlier version of the application, a conversion to the new file format will occur, and the file will then subsequently be saved with the new file extension: .ssc. It will no longer be possible to open .ssc files with earlier versions of SignStream. The conversion process will also entail a file validation process, so please be patient while this occurs. In the event that some intervention is required by the user to ensure that the data are properly converted, such validation errors will appear in a separate window, and instructions will be provided for verifying/correcting the relevant item. You can access any such messages (if you are alerted that there were any issues) from the Help menu, as shown in Figure 3.
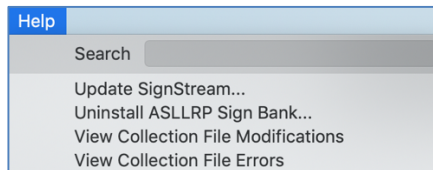

Figure 3. **Any issues with the file can be viewed from the Help menu**

5 Database Window: Changes in the Toolbar

For consistency with the options available in the *Utterance Window*, there are sets of buttons available not only for **Event** (*7* in Figure 4), but now also for **Entity** (*8* in Figure 4), although at the *Database Window* level, both actually correspond to **Utterance**. So, either set of buttons can be used with reference to an **Utterance**. The **Video** label (*2* in Figure 5) has been replaced by the label **Range** (*9* in Figure 4), which refers to the entire video. There is a new option for **Fit Range** (*6* in Figure 4), which will display the entire video timeline within the visible area of this window.

The **Play** button for **Event**, shown as *1* in Figure 2 has been replaced by a single triangle at the left (of both **Event** (*1* in Figure 4) and **Entity** (*3* in Figure 4)). The double triangle button at the right (of both **Event** (*2* in Figure 4) and **Entity** (*4* in Figure 4)), **Play Next** has the effect of playing the *next* event or entity (in the *Database Window*: the next utterance). There is also a new button, **Go to Utterance View**, shown as *10* in Figure 4, which will return to the previously viewed *Utterance Window* display. The **Zoom Slider** (*11*) and the **U/L button** (*12*) in Figure 4 is explained in Section 7.
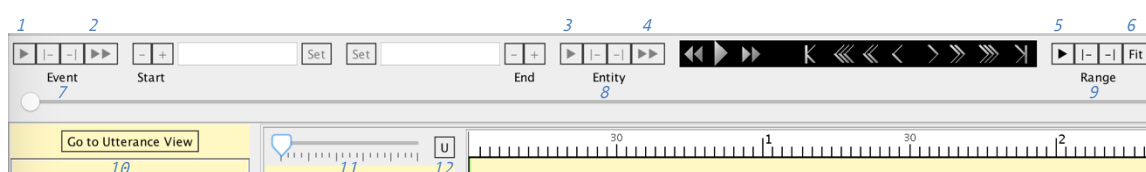
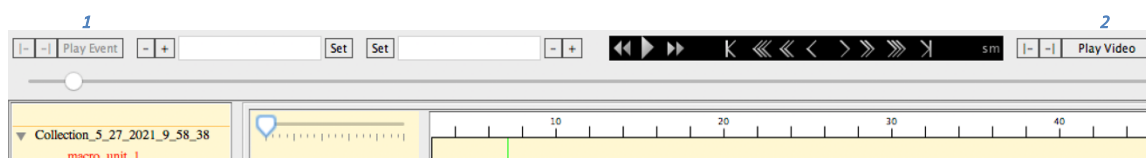**Figure 4.** *Database Window* **Functions (3.4.0)**

Figure 5. *Database Window* **Functions (older versions)**

6 Utterance Window

6.1 Changes in the Utterance Window Toolbar

The single and double triangle buttons just described in the previous section are also used in the *Utterance Window* (Figure 7): the single triangle for **Play** and the double triangle for **Play Next**. The **Fit** option in the **Utterance** group (upper right of the *Utterance Window*) will display the entire Utterance within the visible area of the *Utterance Window*.

There are some changes, as well, to the buttons that determine display of fields. The button (*1* in Figure 6 and Figure 7) **Display/Edit Fields**, which invokes the *Field Specifications Editor* (see Section 5), and the button to **Hide Selected Field** (*2* in Figure 6 and Figure 7) are unchanged from previous versions of the program. The button shown as *5* in Figure 7 has been eliminated, and the button to **Display Graphical Fields**, *4* in Figure 7, has been eliminated—with that functionality incorporated into the *Field Specifications Editor*, as discussed in Section 5. Button *4* in Figure 6 (like Button *3* in Figure 7), **Display Non-Empty**, functions currently to hide empty fields and display fields that have annotations in the selected utterance *and/or* the visible area of the *Utterance Window*. Button *3* in Figure 6, the **Refresh Default Display** button, will display any fields selected for default display in the *Field Specifications Editor*, even if they contain no data (e.g., making them visible again if they had been hidden by use of the **Display Non-Empty** button).

Tooltips display the functions of these buttons (hold the cursor over the button):

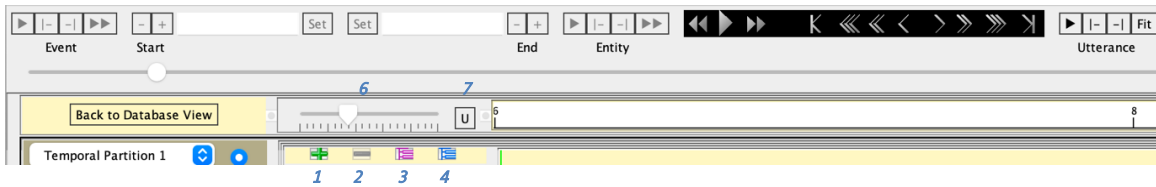|	
1	Display/Edit Fields
2	Hide Selected Field
3	Refresh Default Display
4	Display Non-empty

tooltips

Figure 6. *Utterance Window* **Functions (3.4.0)**

Figure 7. *Utterance Window* **Functions (older versions)**

6.2 One issue in the use of the up and down arrow keys

Normally it is possible to use the up and down arrow keys to navigate to the previous or next utterance in the utterance index list on the left of the *Utterance Window*. However, for some reason in the current version, you may need to click once in the right area of the window (within the rectangle shown below) prior to using the arrow keys.
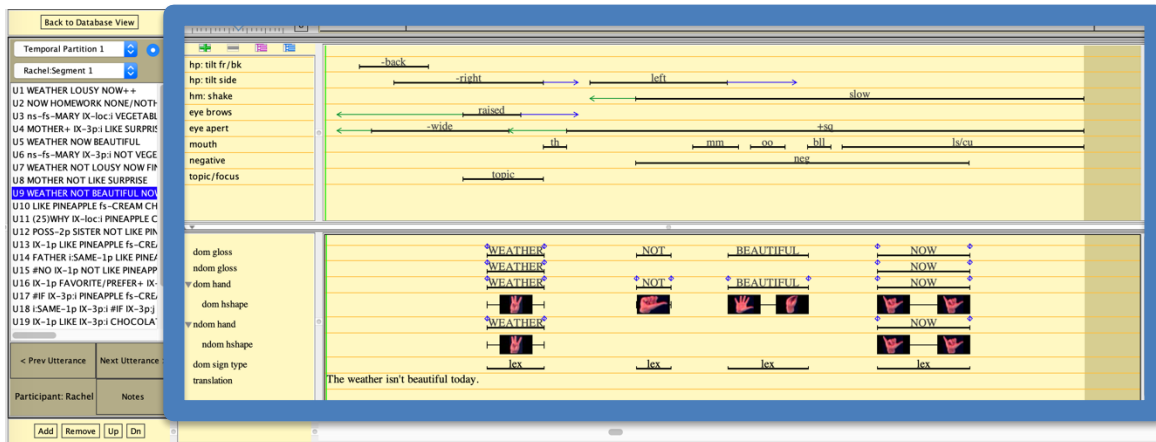
Figure 8. To use the arrow keys for navigation in the Utterance Index on the left of the *Utterance Window* **: click first within the rectangle shown.**

6.3 Field Specifications Editor

It is now possible to specify default selections for display in the current utterance, the entire segment tier, and globally, as shown in Figure 9. You must click on DONE to save changes.

Graphical fields can also be selected for display through this same *Field Specifications Editor*, rather than through the previous button shown as *4* in Figure 7.
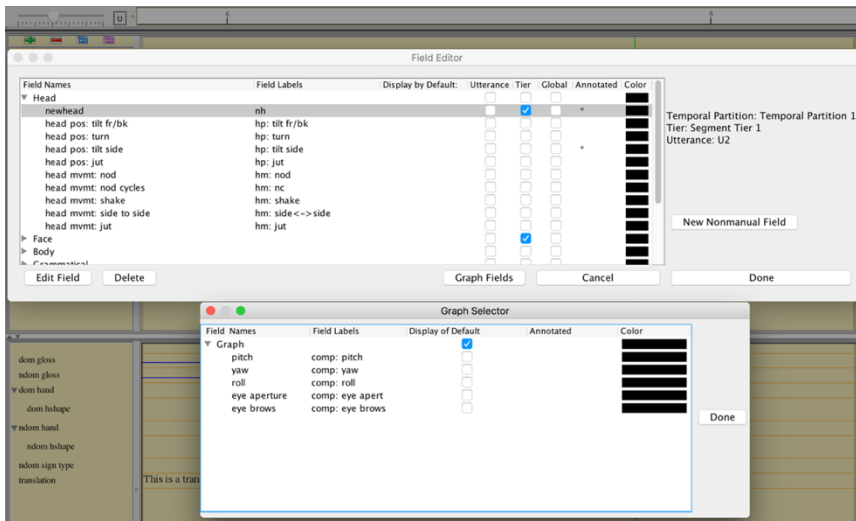
Figure 9. *Field Specifications Editor* **(3.4.0)**
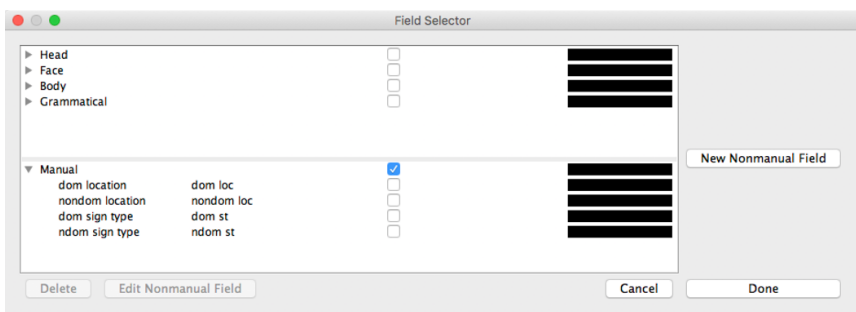

Figure 10. *Field Specifications Editor* **(older versions)**

6.4   Changes in the Way Things Work Across Utterance Boundaries

In previous versions of SignStream®, Utterance boundaries could not be modified in such a way as to result in any annotation automatically being moved from one utterance to another. This restriction has now been eliminated. It is also now possible to have an item that spans more than one utterance, e.g., a gloss that has an offset extending into the following utterance.

The left-hand gloss index displays items that are fully or partially contained within a given utterance (i.e., including any frame between the start and end frames, inclusive). So, for example, if the core event is in one utterance and the offset extends into the following utterance, the gloss in question will appear in the gloss index of both utterances.

6.5   Small Changes in regard to Compounds

The + sign that shows up when two glosses are linked to form a compound is now highlighted in red. If one of the components is deleted, the + sign is also deleted and the deleted item will be unlinked from the compound.

Note that in the (unlikely) event that two parts of the compound occur in different but adjacent utterances—which is now allowed, although that could not have been annotated in previous versions of the program—the + sign may not be visible when viewing either utterance, as it may show up in the space between those utterances.

7 Changes in the Way Zoom Works

The way to change the time scale for the display, in both the *Database* and *Utterance Windows*, is to use the **Zoom Slider** (*11* in Figure 4, *6* in Figure 6). Before doing that however, make sure that the Green Alignment Indicator is positioned in the center of the region that you wish to expand or contract, as the **Zoom Slider** will expand or contract the space equally on both sides of that green bar. Zooming tries to keep the scroll position constant, however when zooming sufficiently far out such that the space cannot be expanded anymore to one side, the view will change position.

When the **Zoom Slider** is *unlocked*, as shown by the U/L button (*12* in Figure 4, *7* in Figure 6) displaying U, then when the user navigates between utterances—using the left-hand utterance index or the Prev/Next buttons, or by clicking an utterance from the database view—the display will adjust the zoom to show the entire utterance.

When *locked*, as shown by the U/L button (*12* in Figure 4, *7* in Figure 6) displaying L, these "auto fit" functions are disabled, and the zoom level remains the same until the user adjusts it again or clicks the "Fit" button. The **Zoom Slider** is automatically locked if the user manually adjusts the **Zoom Slider**. The user can change the value of that button by clicking on it. The zoom lock will keep the Zoom level constant when switching between utterances, or between the **Utterance** and **Database Windows**. The maximum zoom is calculated such that 10 video frames exactly fit in the entire screen width.

8 Changes in the Search Window

The **Search Window** now closes automatically when you open a new SignStream collection (thereby closing the current collection). Thus, it is now no longer possible to directly repeat the same search in a new collection. (This will be addressed in the future.)

9 Bug Fixes

A large number of bugs have been fixed since the last release. Fixes include resolving prior bugs involving:

- the **Go to start/end of utterance** buttons;
- the possibilities for specifying properties of nonmanual fields (and default field values can no longer be deleted);
- the assignment of default properties for different types of signs in the **MorphPhon Window** based on the text in the glosses (e.g., prefixes including fs- , ns- , CL, (1h), (2h), etc.);
- the process of making changes in the **Morph-Phon Window** for a gloss that has already been annotated;
- the process for inserting data from the *Sign Bank* into the **Morph-Phon Window**; and deletion of glosses.

There was also a correction to the coding schema for role shift (eliminating the "rs" prefix from the one provided value, since the prefix is added systematically to all values). Since there may be times when the server accessed by the Sign Bank is unavailable, when that occurs, the attempt to contact the server will now abort with a message indicating that the server is not accessible.

10 Additional Documentation

Please see the following reports from the American Sign Language Linguistic Research Project (ASLLRP) at Boston University:

A User's Guide to SignStream® 3   **Report No. 15**   Neidle, C. (August 2017) [pdf - 24 MB],
http://www.bu.edu/asllrp/SignStream/3/SS_User-guide.pdf

What's New in SignStream® 3.1.0?   **Report No. 16**   Neidle, C. (May 2018) [pdf - 14 MB]
http://www.bu.edu/asllrp/SignStream/3/SS_update.pdf

What's New in SignStream® 3.3.0?   **Report No. 17**   Neidle, C. (2020) [pdf - 14 MB]
http://www.bu.edu/asllrp/SignStream/3/SS_update-3_3.pdf

For information about our online, SignStream-annotated, video corpora shared through our Data Access Interface and about the ASLLRP Sign Bank, see:

A User's Guide to the American Sign Language Linguistic Research Project (ASLLRP) Data Access Interface
(DAI) 2 — Version 2   **Report No. 18**   Neidle, C. and A. Opoku (2020) [pdf - 11 MB]
http://www.bu.edu/asllrp/rpt18/asllrp18.pdf

Neidle, C., Opoku, A., and Metaxas, D. (2022) ASL Video Corpora & Sign Bank: Resources Available through the American Sign Language Linguistic Research Project (ASLLRP). *arXiv:2201.07899*.
https://arxiv.org/abs/2201.07899

11 Issues Remaining to be Addressed in Future Versions

- *General*
  - Making it possible to see handshapes that are not fully visible by hovering over the handshape
  - Making SignStream menus fully available when a window other than the Utterance Window is active
  - Implementation of Cut/Paste/Undo functionality
  - Enabling paste to work in window for file saving
  - Improving the way local information (e.g., about participants, annotators, sign bank) is dealt with
  - Ability to open multiple files/windows simultaneously
  - Ability to have multiple macro units in a single SignStream collection
  - Reconsideration of annotator function, and button for selecting that start and end handshapes are the same or different
  - Improving help functions and tooltips
  - Import and export options
  - Ability to deal with sound (for spoken language)

- *Database* and *Utterance Windows*
  - Implementation of "Display Time Period" in both *Database* and *Utterance Windows*
  - Addition of buttons to play previous event/entity
  - Known issues related to Zoom:
    - In the utterance view, when the green slider is near to the end of the video, some visual glitches may occur while the zoom level slider is being actively dragged. After the slider is released, the zoom level will be set correctly.
    - On **MacOS 12 with ARM processors:** When the user clicks into an utterance for the first time from the database view, the zoom level will pan out to display the entire length of the video. After that, the zoom level will pan out to display just the length of the selected utterance.

- *Morph-Phon* and *Sign Bank Windows*
  - Resolving font display issues – in glosses and in tabs of the *Morph-Phon Window*
  - Improving the sort order of display of Sign Bank results
  - Enabling search by related English words in the Sign Bank (as is now possible online, at https://dai.cs.rutgers.edu/dai/s/dai)
  - Enabling more complete information about handshapes to be entered from the Sign Bank into the Morph-Phon Window when the sign is associated with more than a start and end handshape (i.e., for loan signs)

- *Search Window*
  - Ability to repeat a search on a different collection and to save and re-open searches
  - Adding some keyboard shortcuts to the Search Window

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