

Lesion Liaison Neuroanatomy Learning Aide User's Manual

Version 1.00

Maurice Khayat

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The Main Window

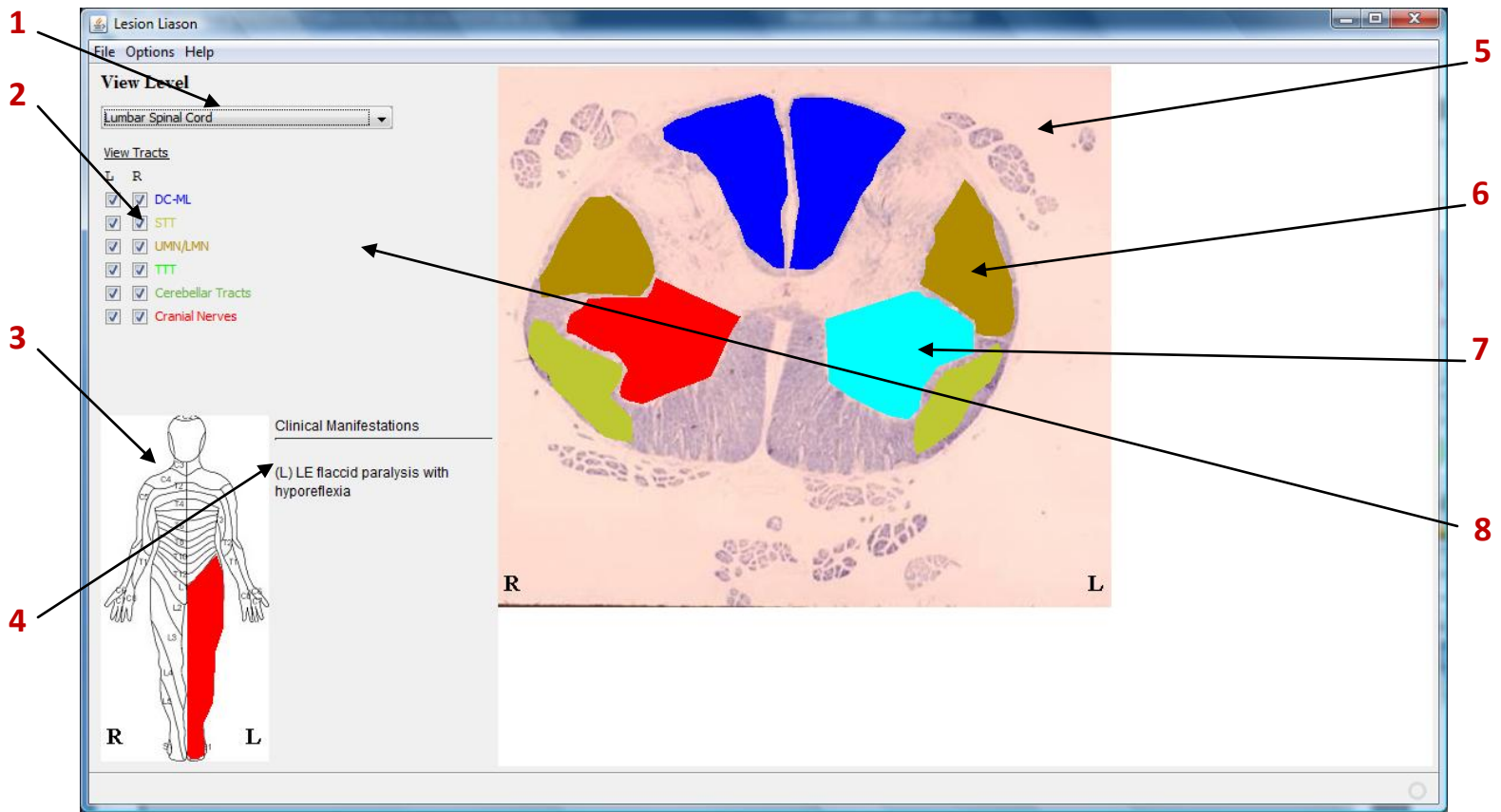


Figure 1 – the main window

1. **Level Selector:** Use this drop down menu to select which level of the CNS to view. The level will be displayed in the **viewing window** (5) to the right of the screen.
2. **Tract View Toggle Area:** This area allows for rapid toggling of different tracts of the CNS. Note that unchecking a tract here will only hide the **markers** (6) outlining these areas in the **viewing window** (5). If a user lesion crosses these areas, the damage will still show up in the **clinical manifestation table** (4) and **dermatome map** (3). To exclude tracts from the program for ease of studying, select Options→Ignore Tracts or Options→Select Paradigm from the menu bar (see [FAQ: Paradigms](#)).
3. **Dermatome Map:** This box demonstrates approximately which dermatomes are affected by all existing CNS **lesions** (7). When a certain tract is affected, the area is shaded in that tract's color (colors are combined if more than one tract is involved).
4. **Clinical Manifestation Table:** This area lists all the clinical manifestations produced by all existing CNS **lesions** (7). It uses some common clinical abbreviations which can be found in the glossary.
5. **Viewing Window:** Displays the current level of the CNS as well as all tract and lesion **markers** (6, 7) that have not been hidden and/or ignored.
6. **Marker:** Simply put, markers are outlines of functionally and/or clinically important areas of the CNS. They can be displayed or hidden using the **tract view toggle area** (2).
7. **Lesion:** An area specified by the user that represents a non-functioning lesion to the CNS.
8. **Quiz Area:** When quiz mode is active, this area displays relevant quiz information.

The Menu Bar

- **File**
 - **Load State** (Ctrl +L) – Loads a lesion state from a lesion (.les) file. The default directory for lesion files is the “saved/” directory.
 - **Save State** (Ctrl +S) – Saves all current user-created lesions into a lesion (.les) file. The default directory for lesion files is “saved/” from the program’s root directory. Lesions can also be made into quizzes using this option (see [FAQS:Quizzes](#)).
 - **Exit** (Ctrl + Q) – quits the program
- **Options**
 - **Clear All Lesions** (Ctrl + L) – clears all user-created lesions from all levels.
 - **Select Paradigm** – opens the paradigm selector. (see [FAQS: Paradigms](#))
 - **Ignore Tracts** – opens the ignore tracts dialog. (see [FAQS: Ignoring Tracts](#))
- **Quiz**
 - **Single Item Quiz** – Begin a quiz using a single Quiz (.quiz) file.
 - **End Quiz** –End the current quiz.
 - **Hide All Markers During Quiz** – If selected, the markers outlining different areas of the CNS will be hidden during a quiz. This option can be toggled in the middle of a quiz.
- **Help**
 - **Toggle Admin Mode** (Ctrl + Shift + A) – toggles administrator mode. Requires a password.
 - **Manual (F1)** – opens this manual as a PDF.
 - **About** – displays information about the program version and author.

Frequently Asked Questions

- **How do I create a lesion?**

There are two ways to create a CNS lesion.

- (1) Right-click on any non-ignored marker, which will bring up a popup menu. Select the menu item “Lesion Area Here”.
- (2) To define a custom area to lesion, hold down SHIFT and left-click once where you would like the lesion to begin. Then define the vertices of the lesion by continuing to hold down SHIFT and left-clicking to outline the area. Once the outline is complete, hold down SHIFT and right-click to create the lesion. You will be asked to name your lesion. Enter any name and press OK. Any tracts contained within all or part of the lesion marker will be damaged. See Figure 2 and Figure 3 below.

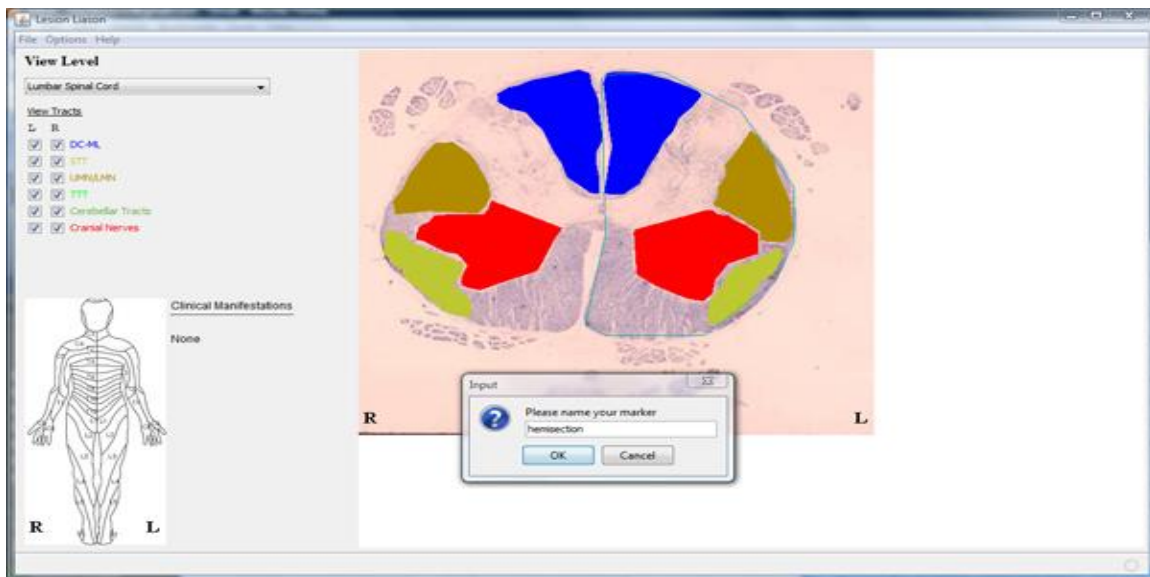


Figure 2 — outlining a custom lesion

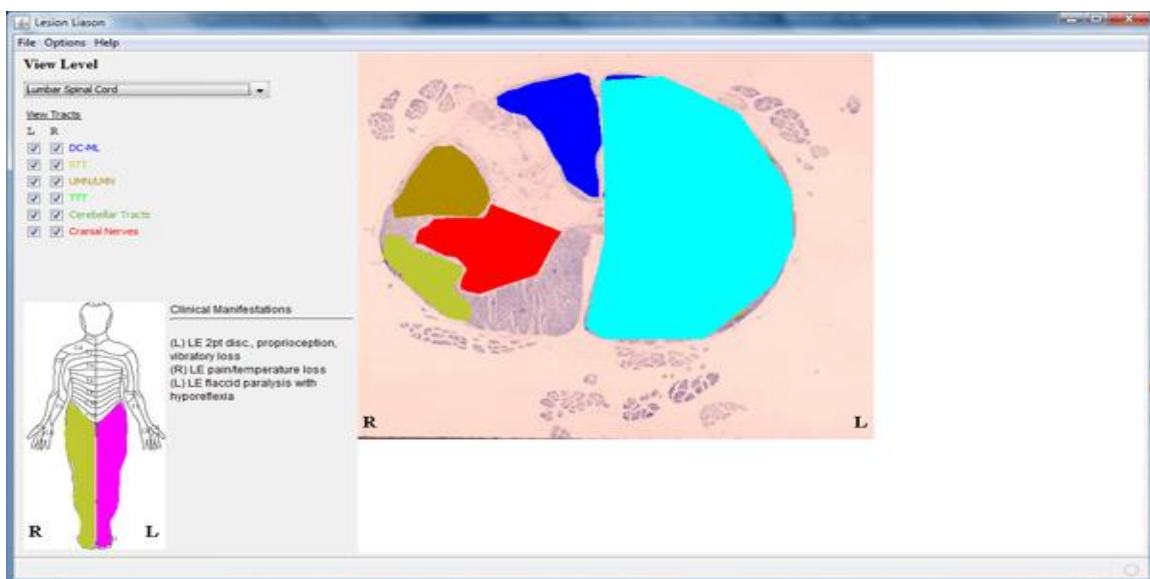


Figure 3 — the all tracts crossed by the custom lesion will be rendered non-functional

- **How do I remove a lesion?**

Lesions can be removed by right-clicking on the lesion marker and selecting “Remove Lesion.” Alternatively, they can be removed by holding CTRL+SHIFT and left-clicking on the lesion.

- **How do I hide tracts?**

The **tract view toggle area** contains a series of checkboxes to define which tracts are viewed. Uncheck the boxes of tracts to hide them from view.

*Note: Hiding the tracts from view simply hides the colored markers from view and does not inactivate the tracts. Any custom lesions that cross over these areas will still appear as lesioned in the **clinical manifestations table** and **dermatome map**.*

- **How ignore tracts I haven’t learned yet?**

There are two ways to ignore tracts. Ignored areas will not appear on the **clinical manifestations table** or **dermatome map** if lesioned. By default, they will also be hidden from view (but can be re-shown by re-checking the appropriate box in the **tract view toggle area**).

- (1) Select “Options→Ignore Tracts” from the menu bar. A dialog containing checkboxes similar to the tract view toggle area will appear. Check the boxes for the tracts to be ignored and press UPDATE.
- (2) Use a paradigm to automatically select which tracts to ignore (see FAQ: Paradigms below)

- **What is a paradigm?**

Paradigms are a list of tracts which are ignored. For example, selecting the “DC-ML only” paradigm will ignore all tracts on all levels of the CNS except for those belonging to the DC-ML. Selecting the “Sensory (Body)” paradigm will ignore all tracts except for the DC-ML and STT.

- **What is a quiz?**

A quiz is simply a single lesion that is hidden from view. The clinical symptoms of the lesion are displayed to the user in the Clinical Manifestation Table as usual. The goal is to be able to localize the lesion to one area. An appropriate case prompt (if one is available) will appear in the quiz area. Clicking on “Select Hint” will display the quiz hint (if one is available). The user can guess the location of the lesion by scrolling to the appropriate level of the CNS and clicking on the desired area while holding the CONTROL key. After a correct guess, the user will have the option to end the quiz or make the lesion visible (“See Answer”). After an incorrect guess, the user will have the option to end the quiz, make the lesion visible (“See Answer”) or attempt to guess again. The quiz can be ended at any time by selecting Quiz→End Quiz from the menu bar.

- **How do I create a quiz?**

The Lesion Liaison program comes with several standard quizzes in the “saved/case quizzes” directory. However, any single lesion can be turned into a user-created quiz. To do so, follow the instructions below:

- (1) Create a single lesion anywhere in the CNS.
- (2) Select File→Save State (Ctrl +S)
- (3) Enter the desired save filename.
- (4) Enter a description of the lesion (if desired)
- (5) Check “Save As Quiz”
- (6) Click on the “Quiz Settings” button
- (7) Enter a question prompt (if desired)

- (8) Enter a quiz hint (if desired)
- (9) Enter an answer explanation (if desired)
- (10) Click "OK"
- (11) Click "Save"