Some definitions

Downward-entailment

one of the following implications holds (f = few students/almost no secretary):

$f(X \cup Y) \Rightarrow f(X) \cap f(Y)$

Few students complained **or** resisted. $\Rightarrow$ Few students complained **and** few students resisted.

$f(X) \cup f(Y) \Rightarrow f(X \cap Y)$

Almost no secretary writes fast **or** almost no secretary types fast. $\Rightarrow$ Almost no secretary writes **and** types fast.

Anti-additive

$f(X \cup Y) = f(X) \cap f(Y)$

Nobody complained **or** resisted. = Nobody complained **and** nobody resisted.

Defining Relations

Via relations we express an NPI being in scope of a licenser, e. g. an operator of strength DE (*few, at most n, hardly,...*):

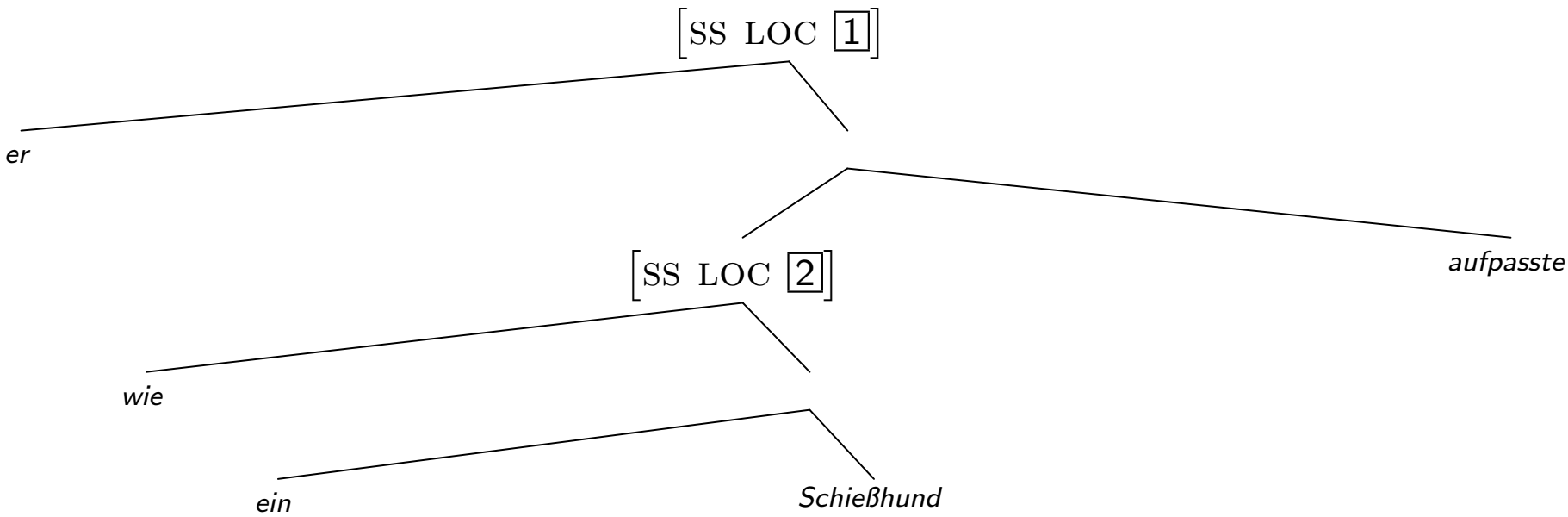
Relation `de-strength-op`:

$$\forall\,\boxed{\text{If}}\;\forall\,\boxed{1}\left(\begin{array}{l}\texttt{de-str-op}(\boxed{\text{If}},\boxed{1}) \leftrightarrow \\ \left(\begin{array}{l}\exists\,\boxed{2}\;\exists\,\boxed{3}\left(\begin{array}{l}\boxed{1} \lhd \boxed{3} \wedge \boxed{2} \lhd \boxed{\text{If}} \wedge \\ \left(\begin{array}{l}\boxed{2}\ \text{every}(_,\boxed{3},_) \lhd \boxed{\text{If}} \vee \\ \boxed{2}\ \text{few}(_,\boxed{3},_) \lhd \boxed{\text{If}} \vee \\ \boxed{2}\ \text{few}(_,_,\boxed{3}) \lhd \boxed{\text{If}} \vee \\ \boxed{2}\ \text{at_most_}n(_,_,\boxed{3}) \lhd \boxed{\text{If}} \vee \\ \boxed{2}\ \text{hardly}(\boxed{3}) \lhd \boxed{\text{If}} \vee \\ \ldots\end{array}\right)\end{array}\right) \\ \vee\ \texttt{aa-str-op}(\boxed{\text{If}},\boxed{1})\end{array}\right)\end{array}\right)$$

LRS — Architecture

$$
\left[\begin{array}{ll}
\textit{phrase} & \\
\textsc{phonology} & \langle \textbf{phon-string} \rangle \\
\textsc{synsem} & \left[\begin{array}{ll}
\textit{synsem} & \\
\textsc{local} & \left[\begin{array}{ll}
\textit{local} & \\
\textsc{content} & \left[\begin{array}{ll}
\textbf{local semantics} & \\
\textsc{index} & \left[\begin{array}{ll} \textsc{phi} & \phi\ \textbf{features} \\ \textsc{var} & \textbf{variable} \end{array}\right] \\
\textsc{main} & \textbf{semantic constant}
\end{array}\right]
\end{array}\right] \\
\textsc{non-local} & [\textit{non-local}]
\end{array}\right] \\
\textsc{logical-form} & \left[\begin{array}{ll}
\textbf{logical expressions of the whole sign} & \\
\textsc{excont} & \ldots \\
\textsc{incont} & \ldots \\
\textsc{parts} & \langle \ldots \rangle
\end{array}\right] \\
\textsc{daughters} & [\textbf{constituent structure}] \\
\textsc{coll} & [\textbf{collocational requirements}]
\end{array}\right]
$$

COLL - An Example



$$\left[\text{COLL}\left\langle\begin{bmatrix}\textit{pp}\\ \text{LOC-LIC}\ \boxed{2}\begin{bmatrix}\text{CT HD LISTEME}\ \textit{wie}\end{bmatrix}\end{bmatrix},\begin{bmatrix}\textit{complete-clause}\\ \text{LOC-LIC}\ \boxed{1}\begin{bmatrix}\text{CT HD LISTEME}\ \textit{aufpassen}\end{bmatrix}\end{bmatrix}\right\rangle\right]$$

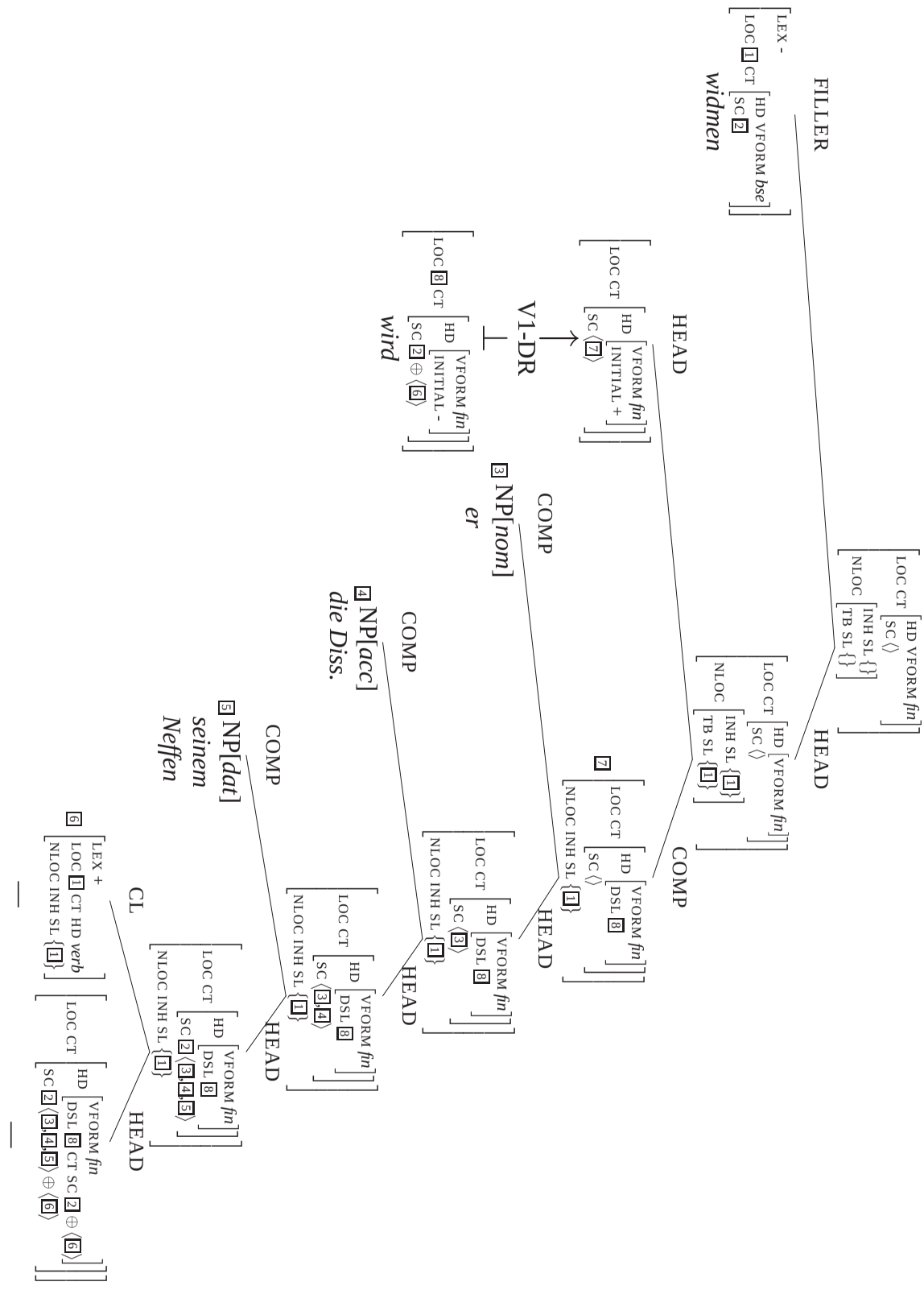


Abbildung 5.11: Analyse von *Widmen wird er die Dissertation seinem Neffen.*