Appendix

1 Cut Isnad for Individual Transmissions

Algorithm 1 Cut Isnad for Individual Transmissions

```
Require: isnad, edge_list
cut_isnad ← {value: isnad text for individual transmissions}
foreach edge ∈ edge_list do
    teacher_id, student_id ← edge[0], edge[1]
    beg_string, end_string ← “L#” + toString(teacher_id),
                             “L#” + toString(student_id)
    transmission_text ← string match from beg_string to
                        end_string
    cut_isnad.append(transmission_text)
end foreach
```

2 Build MoT Corpus

Algorithm 2 Build MoT Corpus

```
Require: cut_isnads
mot_corpus ← {value: MoT words }
mot_corpus ← initialize corpus with $\alpha$ MoT words /* Where $\alpha$ is the number of known MoT words */
need_investigation = {value: transmission text}
foreach transmission_text ∈ cut_isnads do
    matched_mot ← False
    foreach mot ∈ mot_corpus do
        if mot in transmission_text then
            matched_mot = True
            break();
        end if
    end foreach
    if not matched_mot then
        need_investigation.append(transmission_text);
    end if
end foreach
if len(need_investigation) == 0 then
    /* manually look at $\beta$ transmissions in need_investigation and add the undidentifed MoT words to the $\alpha$ known ones */
    /* repeat process until need_investigation is empty */
end if
```

3 Extract MoT from Transmission Text

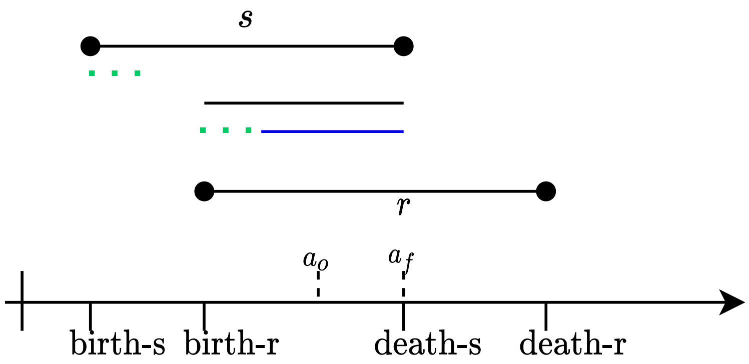
Algorithm 3 Extract MoT from Transmission Text

```
Require: mot_corpus, cut_isnads
transmission_mot = {value: pair(transmission, mot)}
foreach transmission ∈ cut_isnads do
    matched_mots ← {value: pair(mot, position)}
    foreach mot ∈ mot_corpus do
        if mot in transmission then
            position ← position of mot in transmission
            matched_mots.append((mot, position))
        end if
    end foreach
    selected_mot ← apply heuristics to select mot from
                   matched_mots
    transmission_mot.append(pair(transmission,
                                 selected_mot))
end foreach
```

4 Place Transmission in Time Span

Algorithm 4 Place Transmission in Time Span

```
Require: teacher_bio, student_bio
const_lifespan = 80
const_childhood = 20
death_date_teacher ← death date from teacher_bio
death_date_student ← death date from student_bio
if birth_date ∈ teacher_bio then
    birth_date_teacher ← birth date from teacher_bio
else
    birth_date_teacher ← death_date_teacher
                         − const_lifespan
end if
if birth_date ∈ student_bio then
    birth_date_teacher ← birth date from student_bio
else
    birth_date_student ← death_date_student
                         − const_lifespan
end if
upper_bound ← min(death_date_teacher, death_date_student)
lower_bound ← max(birth_date_teacher, birth_date_student)
if upper_bound − lower_bound > const_childhood then
    lower_bound += const_childhood
end if
time_span ← (lower_bound, upper_bound)
```



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