

```

#This script creates a linguistic network based on the empirical
texts corpus
#It will write a comma separated variables file called
"listNodesEmpirical.csv" to the working directory
#The end product is allNetEmpirical to be used in further analyses.

#First load necessary packages
library(tm)
library(igraph)

#Read in corpus
allEmpirical <-Corpus(DirSource("textsEmpirical", encoding="UTF-8"),
readerControl = list(language="lat"))
#Perform basic text-mining preprocessing
allEmpirical<-tm_map(allEmpirical,tolower)
allEmpirical<-tm_map(allEmpirical,removePunctuation)
allEmpirical<-tm_map(allEmpirical,stripWhitespace)

#Algorithmic rules
#These take the form of searching for and replacing a number of
words throughout the corpus
#The substituted words follow the =-sign after 'pattern' in each
line. These words are replaced with 'replacement'.
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<accompanies\\>|\\<accompanying\\>", replacement =
"accompanied")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "accordingly", replacement = "according")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<achieve2013\\>|\\<achieving\\>", replacement =
"achieve")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<acknowledged\\>|\\<acknowledges\\>", replacement =
"acknowledge")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<acquisition\\>|\\<acquiring\\>|\\<acquired\\>",
replacement = "acquire")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<acting\\>|\\<acted\\>|\\<acts\\>", replacement =
"act")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "actions", replacement = "action")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "actively", replacement = "active")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "activities", replacement = "activity")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<actuality\\>|\\<actually\\>", replacement =
"actual")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "adaptively", replacement = "adaptable")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<additionally\\>|\\<additional\\>|\\<addition\\>|\\
<adding\\>|\\<added\\>", replacement = "add")

```

```

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<addressing\\>|\\<addressed\\>)", replacement =
"address")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "adults", replacement = "adult")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "advancing", replacement = "advance")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "aesthetically", replacement = "aesthetic")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "ages", replacement = "age")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "agreement", replacement = "agree")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<aimed\\>|\\<aims\\>)", replacement = "aim")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<allowing\\>|\\<allowed\\>|\\<allows\\>)", replacement
= "allow")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "alongside", replacement = "along")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<analysis\\>|\\<analyses\\>|\\<analysed\\>|\\
\\<analytical\\>|\\<analytic\\>|\\<analyze\\>|\\<analyzing\\>)",
replacement = "analyse")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<answered\\>|\\<answering\\>|\\<answers\\>)",
replacement = "answer")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "appearance", replacement = "appear")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "applications", replacement = "application")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<applicable\\>|\\<applying\\>|\\<applied\\>)",
replacement = "apply")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "approaches", replacement = "approach")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<appropriately\\>|\\<appropriateness\\>)", replacement
= "appropriate")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<argumentation\\>|\\<arguments\\>|\\<argument\\>|\\
\\<argues\\>|\\<argued\\>)", replacement = "argue")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<arisen\\>|\\<arises\\>|\\<arising\\>)",
replacement="arise")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<articulated\\>|\\<articulating\\
\\>)", replacement="articulate")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "artifacts", replacement = "artifact")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<asking\\>|\\<asks\\>)", replacement = "ask")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "aspects", replacement = "aspect")

```

```

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<assigned\\>|\\<assigning\\>)", replacement =
"assign")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<associating\\>|\\<associated\\>|\\<association\\
\\>)", replacement = "associate")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<assumption\\>|\\<assumptions\\>)", replacement =
"assume")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "attributed", replacement="attribute")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<became\\>|\\<becomes\\>|\\<becoming\\>)",
replacement="become")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<beginning\\>|\\<begins\\>)", replacement="begin")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "behaviors", replacement="behavior")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "attributed", replacement="attribute")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<beliefs\\>|\\<believed\\>)", replacement="belief")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "books", replacement="book")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "broader", replacement="broad")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<built\\>|\\<builds\\>)", replacement="build")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "capabilities", replacement="capability")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<carrying\\>|\\<carried\\>|\\<carries\\>)",
replacement="carry")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<categorization\\>|\\<classification\\>|\\
\\<categorizing\\>|\\<categorized\\>|\\<categorize\\>|\\<classified\\
\\>|\\<categories\\>|\\<classify\\>|\\<category\\>)",
replacement="category_classify")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<centered\\>|\\<centred\\>|\\<centre\\>)",
replacement="center")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "centrality", replacement="central")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<challenging\\>|\\<challenged\\>|\\<challenges\\>)",
replacement="challenge")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "changes\\>|\\<changed", replacement="change")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "characteristics", replacement="characteristic")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<childs\\>|\\<child's\\>|\\<children\\>|\\<children's\\
\\>|\\<childrens\\>)", replacement="child")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),

```

```

pattern = "(\\<choices\\>|\\<choosing\\>|\\<choose\\>|\\<chosen\\>|\\<chose\\>)", replacement="choice")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<claimed\\>|\\<claims\\>)", replacement="claim")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "classes", replacement="class")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "classrooms", replacement="classroom")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<coconstructing\\>|\\<coconstructors\\>|\\<coconstruction\\>)", replacement="coconstruct")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "cognitively", replacement="cognitive")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<collaborating\\>|\\<collaborations\\>|\\<collaboration\\>|\\<collaboratively\\>|\\<collaborative\\>|\\<collaborative\\>|\\<collaborators\\>|\\<collaborate\\>)",
replacement="collaborate")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<collecting\\>|\\<collection\\>|\\<collected\\>)",
replacement="collect") #\\>|\\<collective ??
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<combination\\>|\\<combining\\>|\\<combined\\>)",
replacement="combine")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "comes", replacement="come")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<communicate\\>|\\<communicating\\>|\\<communication\\>|\\<communicative\\>|\\<communicators\\>)",
replacement="communicate") #\\>|\\<communities ??
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<communitybased\\>|\\<communities\\>)",
replacement="community")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "comparison", replacement="compare")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "completing\\>|\\<completion", replacement="complete")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<complexities\\>|\\<complexity\\>)",
replacement="complexity")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "components", replacement="component")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<comprised\\>|\\<comprises\\>)",
replacement="comprise")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "computers", replacement="computer")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<conceptualization\\>|\\<conceptualizing\\>|\\<conceptualized\\>|\\<conceptually\\>|\\<conceptualize\\>|\\<conceptions\\>|\\<conception\\>|\\<conceptual\\>|\\<concepts\\>)",
replacement="concept")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<concerning\\>|\\<concerned\\>|\\<concerns\\>)",

```

```

replacement="concern")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<concluding\\>|\\<conclusions\\>|\\<concluded\\>|\\
\\<conclude\\>)", replacement="conclusion")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<conducting\\>|\\<conducted\\>)",
replacement="conduct")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<confirmation\\>|\\<confirmed\\>)",
replacement="confirm")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "conflicts", replacement="conflict")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "conjectures", replacement="conjecture")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<connections\\>|\\<connection\\>|\\<connected\\>|\\
\\<connects\\>)", replacement="connect")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<consideration\\>|\\<considered\\>|\\<considers\\>)",
replacement="consider")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<consistently\\>|\\<consistency\\>)",
replacement="consistent")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<consists\\>|\\<consisted\\>|\\<consisting\\>)",
replacement="consist")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<constituted\\>|\\<constitutes\\>|\\<constituent\\>)",
replacement="constitute")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<constructing\\>|\\<constructive\\>|\\<construction\\
\\>|\\<constructed\\>|\\<constructs\\>)", replacement="construct")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "constructivist", replacement="constructivism")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<contexts'\\>|\\<contexts\\>|\\<context'\\>)",
replacement="context")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<context-sensitive'\\>|\\<contextualized\\>)",
replacement="contextual")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<continuously\\>|\\<continually\\>|\\<continuing\\>|\\
\\<continued\\>)", replacement="continue")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<conversational\\>|\\<conversations\\>)",
replacement="conversation")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "correctly", replacement="correct")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<creating\\>|\\<created\\>|\\<creates\\>)",
replacement="create")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "creativity", replacement="creative")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),

```

```

pattern = "criteria", replacement="criterion")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "critically", replacement="critical")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<curricula\\>|\\<curricular\\>)",
replacement="curriculum")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<cyclical\\>|\\<cyclic\\>)", replacement="cycle")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "dealing", replacement="deal")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "debates", replacement="debate")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<decisionmaking\\>|\\<decisions\\>|\\<deciding\\>|\\
\\<decided\\>)", replacement="decision")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<deepened\\>|\\<deepening\\>|\\<deeper\\>|\\<deeply\\
\\>|\\<deepen\\>)", replacement="deep")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<definitions\\>|\\<defining\\>|\\<defined\\>)",
replacement="define") #ok?
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "degrees", replacement="degree")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<demonstration\\>|\\<demonstrated\\>|\\<demonstrating\\
\\>|\\<demonstrates\\>)", replacement="demonstrate")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<depending\\>|\\<dependence\\>|\\<dependent\\>|\\
\\<depends\\>)", replacement="depend")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<depiction\\>|\\<depicts\\>)", replacement="depict")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<descriptions\\>|\\<descriptively\\>|\\<description\\
\\>|\\<describing\\>|\\<described\\>|\\<describes\\>|\\<describe\\
\\>)", replacement="describe_ption")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<designing\\>|\\<designed\\>)", replacement="design")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "detailed", replacement="detail")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<detection\\>|\\<detecting\\>)", replacement="detect")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "determinate", replacement="determine")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<developmentally\\>|\\<developmental\\>|\\
\\<development\\>|\\<developing\\>|\\<developed\\>|\\<develops\\>)",
replacement="develop")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<johndewey\\>|\\<dewey1991p108\\>|\\<dewey1956pp47-48\\
\\>|\\<dewey1910\\>|\\<deweys\\>)", replacement="dewey")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<difference\\>|\\<differences\\>|\\<differ\\>)",
replacement="different")

```

```

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<difficulty\\>|\\<dificult\\>)",
replacement="difficult")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<dimensions\\>)", replacement="dimension")

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<discipline\\>|\\<disciplines\\>)",
replacement="discipline")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<discoveries\\>|\\<discovering\\>|\\<discovery\\>)",
replacement="discover")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<discussed\\>|\\<discussing\\>|\\<discussions\\>|\\
\\<discussion\\>)", replacement="discuss")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<display\\>|\\<displaying\\>)", replacement="display")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<distinction\\>|\\<distinctions\\>)",
replacement="distinction")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<distinguish\\>|\\<distinguished\\>)",
replacement="distinguish")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<domain\\>|\\<domains\\>|\\<domainspecific\\>)",
replacement="domain")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<drawings\\>|\\<drawing\\>|\\<drawn\\>|\\<draws\\>)",
replacement="draw")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<earlier\\>|\\<early\\>)", replacement="early")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<easier\\>|\\<easily\\>)", replacement="easy")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<educated\\>|\\<educational\\>|\\<education\\>|\\
\\<educative\\>)", replacement="education")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<effectively\\>|\\<effectiveness\\>|\\<effective\\>|\\
\\<effected\\>|\\<effects\\>)", replacement="effect")

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<elaborated\\>|\\<elaborating\\>|\\<elaboration\\>)",
replacement="elaborate")

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<embedded\\>|\\<embedding\\>|\\<embeds\\>)",
replacement="embed")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<emergent\\>|\\<emerges\\>|\\<emerging\\>)",
replacement="emerge")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<emphasise\\>|\\<emphasized\\>|\\<emphasizes\\>|\\
\\<emphasizing\\>|\\<emphasis\\>)", replacement="emphasize")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),

```

```

pattern = "(\\<employed\\>|\\<employing\\>)", replacement="employ")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<enables\\>|\\<enabling\\>)", replacement="enable")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<encouraged encourages\\>|\\<encouraging\\>)",
replacement="encourage")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<engaged engagement\\>|\\<engages\\>|\\<engaging\\>)",
replacement="engage")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "ends", replacement="end")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<enhancements\\>|\\<enhancing\\>)",
replacement="enhance")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<entities\\>)", replacement="entity")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<environments\\>|\\<environments\\>)",
replacement="environment")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<epistemologically\\>|\\<epistemological\\>)",
replacement="epistemic")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<established\\>|\\<establishing\\>)",
replacement="establish")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<evaluated\\>|\\<evaluating\\>|\\<evaluations\\>|\\
\\<evaluation\\>)", replacement="evaluate")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "eshachfried2005p327", replacement="eshachfried2005")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<examined\\>|\\<examines\\>|\\<examining\\>)",
replacement="examine")

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<expansion\\>)", replacement="expand")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<experiences\\>)", replacement="experience")#|\\
\\<experiential\\>
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<experimental\\>|\\<experimentation\\>|\\
\\<experimenting\\>|\\<experimented\\>|\\<experiments\\>)",
replacement="experiment")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<explained\\>|\\<explaining\\>|\\<explains\\>)",
replacement="explain")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<explanations\\>|\\<explanatory\\>)",
replacement="explanation")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<explicitly\\>)", replacement="explicit")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<explorations\\>|\\<exploration\\>|\\<exploratory\\>|\\
\\<explored\\>|\\<exploring\\>|\\<explores\\>)",

```



```

replacement="explore")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<expressed\\>|\\<expressing\\>|\\<expression\\>)",
replacement="express")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<extended\\>|\\<extending\\>|\\<extends\\>)",
replacement="extend")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<facilitated\\>|\\<facilitates\\>|\\<facilitating\\>|\\
\\<facilitators\\>|\\<facilitator\\>)", replacement="facilitate")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<facts\\>|\\<factual\\>)", replacement="fact")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<familiar\\>|\\<family\\>)", replacement="family")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<features\\>)", replacement="feature")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<finding\\>|\\<findings\\>)", replacement="find")

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<floating\\>)", replacement="float")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<foci\\>|\\<focused\\>|\\<focuses\\>|\\<focusing\\>)",
replacement="focus")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<followed\\>|\\<following\\>)", replacement="follow")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<forms\\>)", replacement="form")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<formally\\>)", replacement="formal")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<formats\\>)", replacement="format")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<formulating\\>|\\<formulation\\>)",
replacement="formulate")

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<framed\\>|\\<frames\\>)", replacement="frame")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<frameworks\\>)", replacement="framework")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<freedom\\>)", replacement="free")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<french2004p147\\>)", replacement="french2004")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<fully\\>)", replacement="full")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<functioning\\>|\\<functions\\>)",
replacement="function")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<gained\\>|\\<gaining\\>)", replacement="gain")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<gathering\\>)", replacement="gather")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),

```

```

pattern = "(\\<generalization\\>|\\<generalizing\\>)",
replacement="general")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<generated\\>|\\<generates\\>|\\<generatingd\\>|\\
\\<generating\\>)", replacement="generate")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<get\\>)", replacement="get")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<gave\\>|\\<given\\>|\\<gives\\>|\\<giving\\>)",
replacement="give")

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<goal-orientated\\>|\\<goals\\>|\\<goaloriented\\>)",
replacement="goal")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<grades\\>)", replacement="grade")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<grain'\\>|\\<grained\\>)", replacement="grain")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<greater\\>|\\<greatly\\>)", replacement="great")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<grounds\\>)", replacement="grounded")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<grouped\\>|\\<groups\\>)", replacement="group")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<guidance\\>|\\<guided\\>|\\<guidelines\\>|\\<guides\\
\\>|\\<guiding\\>)", replacement="guide")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<higher\\>|\\<highly\\>)", replacement="high")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<hypotheses\\>|\\<hypothesizing\\>|\\<hypothesized\\
\\>)", replacement="hypothesis")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<ideas\\>)", replacement="idea")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<identifiable\\>|\\<identification\\>|\\<identified\\
\\>|\\<identifying\\>|\\<identifies\\>)", replacement="identify")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<implies\\>)", replacement="imply")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<importance\\>)", replacement="important")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<included\\>|\\<includes\\>|\\<including\\>|\\
\\<inclusion\\>)", replacement="include")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<incorporates\\>|\\<incorporation\\>)",
replacement="incorporate")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<increased\\>|\\<increases\\>|\\<increasing\\>|\\
\\<increasingly\\>)", replacement="increase")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<independence\\>|\\<independently\\>)",
replacement="independent")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),

```

```

pattern = "(\\<indicated\\>|\\<indicates\\>)",
replacement="indicate")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<individual's\\>|\\<individuals\\>)",
replacement="individual")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<inferences\\>|\\<inference\\>|\\<inferring\\>)",
replacement="infer")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<influenced\\>|\\<influential\\>)",
replacement="influence")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<informative\\>|\\<informed\\>)",
replacement="inform")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<initially\\>)", replacement="initial")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<initiating\\>)", replacement="initiate")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<inquirer\\>|\\<inquiries\\>|\\<inquiring\\>|\\
\\<inquirybased\\>)", replacement="inquiry")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<inspired\\>|\\<inspiring\\>)", replacement="inspire")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<instances\\>)", replacement="instance")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<instructional\\>|\\<instructionally\\>|\\
\\<instructions\\>)", replacement="instruction")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<integrated\\>|\\<integrating\\>|\\<integration\\>)",
replacement="integrate")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<intentionally\\>|\\<intentions\\>|\\<intended\\>)",
replacement="intent")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<interacting\\>|\\<interactions\\>|\\<interact\\>|\\
\\<interacted\\>)", replacement="interaction")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<interpretively\\>|\\<interpretations\\>|\\
\\<interpretation\\>|\\<interpreted\\>|\\<interpreting\\>|\\
\\<interprets\\>)", replacement="interpret")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<introduced\\>|\\<introduces\\>|\\<introducing\\>|\\
\\<introduction\\>)", replacement="introduce")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<investigating\\>|\\<investigations\\>|\\
\\<investigation\\>|\\<investigated\\>)", replacement="investigate")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<involved\\>|\\<involves\\>|\\<involving\\>)",
replacement="involve")

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<judging\\>|\\<judgments\\>)", replacement="judge")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),

```

```

pattern = "(\\<kindergarteners\\>|\\<kindergartners\\>)",
replacement="kindergartener")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<kinds\\>)", replacement="kind")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<knew\\>|\\<knowing\\>|\\<known\\>|\\<knows\\>|\\
\\<knowledgeable\\>)", replacement="know") #but not knowledge,
because different connotation.
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<labs\\>)", replacement="laboratory")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<larger\\>)", replacement="large")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<leading\\>|\\<leads\\>)", replacement="lead")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<learn\\>|\\<learned\\>|\\<learning\\>)",
replacement="learn")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<learners\\>|\\<learners'\\>)", replacement="learner")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<lesser\\>)", replacement="less")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<lessons\\>)", replacement="lesson")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<levels\\>)", replacement="level")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<listening\\>|\\<listens\\>)", replacement="listen")
#allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<living-nonliving\\>|\\<living\\>)", replacement=" ")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<locally\\>)", replacement="local")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<located\\>|\\<locations\\>)", replacement="location")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<logical\\>|\\<logically\\>)", replacement="logical")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<longer\\>)", replacement="longterm")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<looking\\>|\\<looked\\>)", replacement="look")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<losing\\>)", replacement="lose")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<major\\>|\\<majors\\>)", replacement="major") #HMMM
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<makes\\>|\\<making\\>)", replacement="make")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<manageable\\>)", replacement="manage")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<manifest\\>|\\<manifested\\>)",
replacement="manifest")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<manipulating\\>|\\<manipulate\\>)",
replacement="manipulation")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),

```

```

pattern = "(\\<map\\>|\\<mapping\\>)", replacement="map")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<master\\>|\\<mastery\\>)", replacement="master")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<material\\>|\\<materials\\>)",
replacement="material")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<mathematically\\>|\\<mathematics\\>|\\<mathematic\\>|\\<math\\>)", replacement="mathematical")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<meaning'\\>|\\<meaningful\\>|\\<meaningfully\\>|\\<meanings\\>|\\<mean\\>)", replacement="meaning")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<measuring\\>|\\<measured\\>|\\<measurements\\>|\\<measure\\>)", replacement="measurement")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<members\\>|\\<membership\\>)", replacement="member")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<mental\\>|\\<mentally\\>)", replacement="mental")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<method\\>|\\<methods\\>)", replacement="method")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<midwest\\>|\\<midwestern\\>)", replacement="midwest")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<model\\>|\\<modelbased\\>|\\<modeling\\>|\\<modelling\\>|\\<models\\>)", replacement="model")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<modified\\>|\\<modify\\>|\\<modifying\\>)",
replacement="modify")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<moment\\>|\\<moments\\>)", replacement="moment")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<movements\\>|\\<moves\\>|\\<moving\\>)",
replacement="move")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<mutual\\>|\\<mutually\\>)", replacement="mutual")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<natural\\>|\\<naturally\\>)", replacement="natural")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<necessarily\\>)", replacement="necessary")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<needed\\>|\\<needs\\>)", replacement="need")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<newfound\\>)", replacement="new")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<normative\\>|\\<norms\\>)", replacement="norm")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<noted\\>|\\<notes\\>)", replacement="note")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<notions\\>)", replacement="notion")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<numbers\\>|\\<numeracy\\>|\\<numerical\\>)",
replacement="number") #HMMM
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),

```

```

pattern = "(\\<objects\\>|\\<objects'\\>)", replacement="object")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<observations\\>|\\<observational data\\>)",
replacement="observation")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<observed\\>|\\<observes\\>|\\<observing\\>)",
replacement="observe")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<obtaining\\>)", replacement="obtain")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<operates\\>)", replacement="operate")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<opportunities\\>)", replacement="opportunity")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<organized\\>|\\<organizing\\>)",
replacement="organize")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<orientated\\>|\\<orientation\\>|\\<oriented\\>)",
replacement="orient")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<original\\>|\\<originally\\>)",
replacement="original")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<others'\\>)", replacement="others")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<outcomes\\>)", replacement="outcome")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<overarching\\>)", replacement="overall")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<participating\\>|\\<participation\\>|\\
\\<participatory\\>)", replacement="participate")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<participants\\>)", replacement="participant")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<particularly\\>)", replacement="particular")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<partnerships\\>|\\<partnerships\\>|\\<partners\\>)",
replacement="partner")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<paths\\>|\\<pathway\\>)", replacement="path")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<patterns\\>)", replacement="pattern")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<pedagogical\\>|\\<pedagogically\\>)",
replacement="pedagogy")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<pedagogies\\>|\\<pedagogy\\>)",
replacement="pedagogy")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<perceive\\>|\\<perceived\\>)",
replacement="perceive")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<periods\\>)", replacement="period")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),

```

```

pattern = "(\\<personally\\>)", replacement="personal")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<perspectives\\>)", replacement="perspective")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<phase1\\>|\\<phase2\\>|\\<phase3\\>|\\<phases\\>)",
replacement="phase")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<phenomena\\>)", replacement="phenomenon")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<photography\\>)", replacement="photo")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<phrased\\>|\\<phrases\\>)", replacement="phrase")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<physically\\>)", replacement="physical")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<pictures\\>)", replacement="picture")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<place\\>|\\<placed\\>|\\<places\\>)",
replacement="place")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<plans\\>|\\<planned\\>|\\<planning\\>)",
replacement="plan")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<plant\\>|\\<plants\\>)", replacement="plant")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<playbased\\>|\\<plays\\>)", replacement="play")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<pointed\\>|\\<points\\>)", replacement="point")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<posed\\>)", replacement="pose")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<powerfully\\>)", replacement="powerful")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<practiced\\>|\\<practices\\>|\\<practicum\\>)",
replacement="practice")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<predicted\\>|\\<predicting\\>|\\<prediction\\>|\\
\\<predictions\\>)", replacement="predict")
#allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<prediction\\>|\\<predictions\\>)",
replacement="predict")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<preparation\\>|\\<prepared\\>|\\<preparing\\>)",
replacement="prepare")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<preprimarylevel\\>|\\<kindergarten\\>)",
replacement="kindergarten")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<preschool\\>|\\<preschoolers\\>|\\<preschoolers'\\>|\\
\\<kindergartner\\>)", replacement="kindergartener")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<present\\>|\\<presented\\>|\\<presenting\\>|\\
\\<presents\\>|\\<presentation\\>)", replacement="present") #
different meanings possible?

```

```

#allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<primarily\\>|\\<firsthand\\>|\\<first\\>)",
replacement="prime")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<principles\\>)", replacement="principle")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<problems\\>)", replacement="problem")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<problembased\\>)", replacement="problemsolving")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<procedures\\>|\\<procedural\\>)",
replacement="procedure")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<process-ask\\>|\\<processes\\>)",
replacement="process")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<production\\>|\\<productive\\>|\\<producing\\>|\\
\\<produce\\>|\\<products\\>)", replacement="product") #HMMM
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<proficiency\\>|\\<proficient\\>)",
replacement="proficient")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<program\\>|\\<programme\\>)", replacement="program")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<progression\\>|\\<progressively\\>|\\<progressed\\>|\\
\\<progress\\>)", replacement="progression") #not as in learning
progression?
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<projectbased\\>|\\<projects\\>)",
replacement="project")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<promote\\>|\\<promotes\\>|\\<promotion\\>)",
replacement="promote")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<proposed\\>|\\<proposing\\>|\\<propos\\>)",
replacement="propose")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<provided\\>|\\<provides\\>|\\<providing\\>)",
replacement="provide")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<provocateurs\\>)", replacement="provocateur")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<putting\\>)", replacement="put")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<queries\\>)", replacement="query")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<questioning\\>|\\<questions\\>|\\<questioned\\>)",
replacement="question")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<raising\\>)", replacement="raise")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<ranging\\>)", replacement="range")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),

```



```

pattern = "(\\<reached\\>)", replacement="reach")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<realistic\\>|\\<reality\\>)", replacement="real")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<realworld\\>)", replacement="reallife")

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<recognition\\>|\\<recognizing\\>|\\<recognize\\>)",
replacement="recognise")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<recommendations\\>|\\<recommended\\>|\\<recommends\\>)",
replacement="recommend")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<reconstructing\\>)", replacement="reconstruct")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<recorded\\>|\\<recording\\>)", replacement="record")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<referring\\>|\\<refers\\>)", replacement="refer")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<refined\\>|\\<refining\\>)", replacement="refine")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<reflecting\\>|\\<reflections\\>|\\<reflection\\>|\\<reflects\\>|\\<reflected\\>)",
replacement="reflect")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<regarding\\>|\\<regarded\\>)", replacement="regard")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<reinforced\\>|\\<reinforcement\\>|\\<reinforcing\\>)",
replacement="reinforce")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<relating\\>|\\<related\\>|\\<relates\\>)",
replacement="relate")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<relationbased\\>)", replacement="relation")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<relationship\\>|\\<relationships\\>|\\<relations\\>)",
replacement="relation")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<relevant\\>)", replacement="relevance")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<relies\\>|\\<relying\\>)", replacement="rely")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<repeatedly\\>|\\<repeated\\>)", replacement="repeat")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<reported\\>|\\<reporting\\>)", replacement="report")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<representing\\>|\\<representations\\>)",
replacement="represent")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<representational\\>)", replacement="representation")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<requires\\>|\\<requiring\\>|\\<requirement\\>|\\<requisite\\>)",
replacement="require")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<researchers\\>|\\<researcher\\>)",

```

```

replacement="researcher") #HMMM
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<researching\\>", replacement="research") #HMMM

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<resources\\>", replacement="resource")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<respected\\>", replacement="respect")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<responds\\>|\\<response\\>", replacement="respond")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<results\\>", replacement="result")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<reviewed\\>|\\<reviewing\\>", replacement="review")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<revising\\>", replacement="revise")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<roles\\>", replacement="role")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<scaffolded\\>|\\<scaffolding\\>|\\<scaffolds\\>",
replacement="scaffold")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<schools\\>", replacement="school")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<sciencelated\\>|\\<sciences\\>|\\<scientific\\>|\\
\\<scientifically\\>", replacement="science") #HMMMM
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<scientists\\>", replacement="scientist")
#allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<second\\>|\\<secondary\\>", replacement=" ") #HMMM
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<seeking\\>|\\<seeks\\>", replacement="seek")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<seemed\\>|\\<seems\\>", replacement="seem")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<selected\\>|\\<selecting\\>|\\<selectively\\>|\\
\\<selection\\>", replacement="select")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<sensemaking\\>", replacement="sense")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<sequencing\\>|\\<sequentially\\>|\\<sequential\\>",
replacement="sequence")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<serves\\>|\\<serving\\>", replacement="serve")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<sessions\\>", replacement="session")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<sets\\>", replacement="set")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<settings\\>", replacement="setting")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<shaped\\>|\\<shaping\\>", replacement="shape")

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),

```

```
pattern = "\\<shifts\\>|\\<shifting\\>\"", replacement="shift")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<shows\\>|\\<showed\\>|\\<shown\\>|\\<showing\\>\"",
replacement="show")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<similarities\\>|\\<similarly\\>\"",
replacement="similar")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<simply\\>", replacement="simple")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<simulated\\>|\\<simulations\\>|\\<simulate\\>\"",
replacement="simulation")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<sinking\\>", replacement="sink")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<situated\\>|\\<situating\\>", replacement="situate")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<situations\\>", replacement="situation")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<skills\\>", replacement="skill")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<smaller\\>", replacement="small")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<solely\\>", replacement="sole")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<solutions\\>", replacement="solution")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<solving\\>", replacement="solve")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<sources\\>", replacement="source")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<specification\\>|\\<specified\\>|\\<specifying\\>\"",
replacement="specify") #HMMM
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<stages\\>", replacement="stage")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<started\\>|\\<starting\\>|\\<starts\\>\"",
replacement="start")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<statement\\>|\\<statements\\>|\\<states\\>|\\<stated\\>\"",
replacement="state")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<step1\\>|\\<step2\\>|\\<step3\\>|\\<step4\\>|\\<steps\\>|\\<step\\>\"", replacement="phase") #HMMMMM CHECK THIS OUT!!
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<stimulated\\>|\\<stimulating\\>|\\<stimuli\\>\"",
replacement="stimulate") #HMMMM
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<stories\\>", replacement="story")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<strongly\\>", replacement="strong")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<structural\\>|\\<structured\\>|\\<structures\\>|\\
```

```

\\<structuring\\>", replacement="structure")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<studentcentered\\>|\\<studentdirected\\>",
replacement="studentcentred")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<students\\>", replacement="student")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<studied\\>|\\<studies\\>", replacement="study")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<subjects\\>", replacement="subject")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<subsequently\\>", replacement="subsequent")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<successful\\>|\\<successfully\\>",
replacement="success")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<suggested\\>", replacement="suggest")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<summarized\\>|\\<summarizes\\>|\\<summarizing\\>|\\
\\<summary\\>", replacement="summarize")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<supported\\>|\\<supporting\\>|\\<supports\\>|\\
\\<supportive\\>", replacement="support")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<surrounding\\>|\\<surrounds\\>",
replacement="surround")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<systematically\\>", replacement="systematic")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<taken\\>|\\<takes\\>|\\<taking\\>|\\<took\\>",
replacement="take")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<talked\\>|\\<talking\\>", replacement="talk")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<targeted\\>|\\<targeting\\>|\\<targets\\>",
replacement="target")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<tasks\\>", replacement="task")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<coteacher\\>|\\<teacher's\\>|\\<teachers\\>|\\
\\<teaching\\>", replacement="teacher")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<technological\\>|\\<technologies\\>",
replacement="technology")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<terms\\>|\\<terminology\\>", replacement="term")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<testing\\>|\\<tested\\>|\\<tests\\>",
replacement="test")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<thoughts\\>", replacement="thought")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<topics\\>|\\<topical\\>", replacement="topic")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),

```

```

pattern = "(\\<tracked\\>|\\<tracking\\>)", replacement="track")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<transformations\\>)", replacement="transformation")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<translated\\>|\\<translates\\>)",
replacement="translate")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<type\\>|\\<types\\>)", replacement="type")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<typically\\>)", replacement="typical")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<understanding\\>|\\<understandings\\>|\\<understood\\>)", replacement="understand")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<units\\>)", replacement="unit")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<universityschool\\>)", replacement="university")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<unlikely\\>|\\<unlikely\\>)", replacement="unlikely")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<used\\>|\\<uses\\>|\\<using\\>)", replacement="use")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<varieties\\>)", replacement="variety")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<verbalization\\>|\\<verbally\\>)",
replacement="verbal")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<viewed\\>|\\<viewing\\>|\\<views\\>)",
replacement="view")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<way\\>|\\<ways\\>)", replacement="way")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<word\\>|\\<words\\>)", replacement="word")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<working\\>|\\<works\\>)", replacement="work")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<writing\\>|\\<writings\\>|\\<written\\>)",
replacement="write")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<yearold\\>|\\<years\\>)", replacement="year")

```

##Specific for empirical

```

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<abilities\\>)", replacement="ability")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<acorns\\>)", replacement="acorn")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<adaptation\\>|\\<adapted\\>)", replacement="adapt")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<adopted\\>|\\<adopts\\>)", replacement="adopt")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<advanced\\>)", replacement="complex")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<affecting\\>|\\<affects\\>)", replacement="affect")

```

```

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<affordances\\>|\\<affords\\>", replacement="afford")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<amounts\\>", replacement="amount")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<animals\\>", replacement="animal")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<ants\\>", replacement="ant")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<eating\\>|\\<eaten\\>|\\<ate\\>", replacement="eat")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<approached\\>", replacement="approach")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<areas\\>", replacement="area")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<artistic\\>|\\<artworks\\>|\\<artwork\\>|\\<arts\\>", replacement="art")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<asked\\>", replacement="ask")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<assessments\\>|\\<assessment\\>|\\<assessed\\>|\\<assesses\\>", replacement="assess")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<assistance\\>", replacement="assist")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<assuming\\>|\\<assumed\\>", replacement="assume")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<attributions\\>|\\<attributes\\>", replacement="attribute")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<bags\\>", replacement="bag")

```

```

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<bands\\>", replacement="band")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<beans\\>", replacement="bean")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<bears\\>", replacement="bear")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<began\\>|\\<begun\\>", replacement="begin")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<behaviours\\>|\\<behaviour\\>|\\<behave\\>", replacement="behavior")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<bigger\\>", replacement="big")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<birds\\>", replacement="bird")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<blocks\\>", replacement="block")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<boards\\>", replacement="board")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<boiling\\>|\\<boiled\\>", replacement="boil")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),

```

```

pattern = "\\<boxes\\>", replacement="box")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<boys\\>", replacement="boy")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<bringing\\>|\\<brought\\>", replacement="bring")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<broken\\>|\\<broke\\>", replacement="break")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<buckets\\>", replacement="bucket")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<building\\>|\\<build\\>", replacement="built")
#building not used as in 'house' but as the action of building
something
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<butterflies\\>", replacement="butterfly")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<called\\>", replacement="call")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<captured\\>", replacement="capture")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<capitalized\\>", replacement="capitalize")

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<cartoonish\\>|\\<cartoonlike\\>|\\<cartoons\\>",
replacement="cartoon")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<carvers\\>", replacement="carver")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<cases\\>", replacement="case")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<causal\\>", replacement="cause")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<centers\\>", replacement="center")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<checking\\>|\\<checked\\>", replacement="check")

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<chicks\\>", replacement="chick")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<clarifications\\>", replacement="clarification")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<clips\\>", replacement="clip")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<cleaning\\>", replacement="clean")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<closely\\>|\\<closeness\\>", replacement="close")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<clouds\\>", replacement="cloud")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<coding\\>|\\<codes\\>", replacement="code")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<collaboration\\>|\\<collaborate\\>",
replacement="collaborative") # Is this ok? \\<collective\\>|
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),

```

```

pattern = "(\\<collects\\>)", replacement="collect")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<colouring\\>|\\<coloured\\>|\\<coloring\\>|\\<colour\\>|\\<colored\\>|\\<colors\\>)", replacement="color") # Is this ok?
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<coming\\>)", replacement="come")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<comments\\>)", replacement="comment")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<communitys\\>)", replacement="community")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<compared\\>|\\<compares\\>)", replacement="compare")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<competencies\\>)", replacement="competence")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<compressing\\>|\\<compressed\\>)",
replacement="compress")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<computertablets\\>)", replacement="computer")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<containers\\>)", replacement="container")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<contextualize\\>|\\<contextually\\>|\\<contextual\\>|\\<contextensitive\\>)", replacement="contextual")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<continues\\>)", replacement="continue")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<contrasting\\>|\\<contrasted\\>)",
replacement="contrast")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<contributions\\>)", replacement="contribute") #Ok?
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<controlled\\>|\\<controls\\>)",
replacement="control")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<correspondence\\>|\\<corresponding\\>)",
replacement="correspond")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<counting\\>|\\<counts\\>)", replacement="count")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<countries\\>|\\<counts\\>)", replacement="country")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<covering\\>)", replacement="covered")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<cubes\\>)", replacement="cube")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<culturally\\>|\\<cultural\\>)",
replacement="culture")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<cups\\>)", replacement="cup")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<cutouts\\>)", replacement="cutout")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<debriefings\\>)", replacement="debrief")

```



```

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<demanding\\>", replacement="demand")

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<details\\>", replacement="detail")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<dialogic\\>", replacement="dialogue")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<differentiating\\>", replacement="differentiate")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<dinosaurs\\>", replacement="dinosaur")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<discursive\\>", replacement="discourse")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<distributed\\>|\\<distributing\\>",
replacement="distribute")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<dispersal\\>", replacement="disperse")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<displayed\\>", replacement="display")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<document\\>", replacement="documenting") #In this
corpus these two forms relate to children documenting
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<drinks\\>", replacement="drink")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<driving\\>|\\<driven\\>", replacement="drive")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<drew\\>", replacement="draw")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<drops\\>", replacement="drop")#as in pellet, not the
verb
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<dynamically\\>", replacement="dynamic")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<eagerness\\>|\\<eagerly\\>", replacement="dynamic")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<earths\\>|\\<earthlets\\>", replacement="earth")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<eggs\\>", replacement="egg")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<electrical\\>|\\<electricity\\>",
replacement="electric")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<elements\\>", replacement="element")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<elicitation\\>|\\<elicited\\>|\\<eliciting\\>",
replacement="elicit")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<ellie\\>", replacement="study_child")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<emerged\\>", replacement="emerge")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<empirically\\>", replacement="empirical")

```

```

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<enabled\\>", replacement="enable")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<enactments\\>|\\<act\\>", replacement="enactment")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<encouraged\\>", replacement="encourage")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<ended\\>", replacement="end")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<energy1\\>|\\<energy-a\\>", replacement="energy")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<engagement\\>|\\<engaged\\>", replacement="engage")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<enhanced\\>", replacement="enhance")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<enquiry\\>", replacement="inquiry")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<epistemology\\>", replacement="epistemic")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<essentially\\>", replacement="essential")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<evaporation\\>", replacement="evaporate")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<events\\>", replacement="event")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<examples\\>", replacement="example")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<excerpts\\>", replacement="excerpt")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<existence\\>|\\<existing\\>", replacement="exist")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<feeders\\>", replacement="feeder")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<filip\\>", replacement="study_child")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<filling\\>|\\<filled\\>", replacement="fill")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<finds\\>", replacement="find")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<finally\\>", replacement="final")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<fingerprints\\>", replacement="fingerprint")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<firstgrade\\>", replacement="primary")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<flew\\>", replacement="fly")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<flowers\\>", replacement="flower")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<follows\\>", replacement="follow")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<foods\\>", replacement="food")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<forces\\>", replacement="force")

```

```

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<format\\>", replacement="form")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<fostered\\>", replacement="foster")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<fourphase\\>", replacement="four phase")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<fivephase\\>", replacement="five phase")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<fourth\\>", replacement="four")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<freely\\>", replacement="free")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<frequencies\\>", replacement="frequency")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<frequently\\>", replacement="frequent")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<frida\\>", replacement="student_child")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<functionality\\>", replacement="function")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<gamelike\\>|\\<games\\>", replacement="game")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<gardening\\>|\\<gardens\\>", replacement="garden")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<gathered\\>", replacement="gather")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<gauging\\>", replacement="gauge")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<gauging\\>", replacement="gauge")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<generally\\>|\\<generalized\\>",
replacement="general")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<gets\\>", replacement="get")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<ginas\\>|\\<gina\\>", replacement="example_child")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<girls\\>", replacement="girl")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<got\\>", replacement="get")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<gravitational\\>", replacement="gravity")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<group-togroup\\>|\\<smallgroup\\>|\\<wholegroup\\>",
replacement="group")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<growing\\>|\\<growth\\>", replacement="grow")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<habitats\\>", replacement="habitat")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<hair\\>", replacement="hair")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<hands\\>", replacement="hand")

```

```

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<hanna\\>", replacement="study_child")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<hannah\\>", replacement="study_teacher")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<happened\\>|\\<happening\\>|\\<happens\\>",
replacement="happen")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<helped\\>|\\<helpful\\>|\\<helps\\>",
replacement="help")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<holes\\>", replacement="hole")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<homes\\>", replacement="home")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<humans\\>", replacement="human")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<illustration\\>|\\<illustrating\\>|\\<illustrates\\>",
replacement="illustrate")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<images\\>", replacement="image")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<imagining\\>|\\<imaginary\\>",
replacement="imagination")

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<implementation\\>|\\<implemented\\>|\\<implementing\\>|\\<implements\\>", replacement="implement")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<improved\\>", replacement="improve")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<impulses\\>", replacement="impuls")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<inclines\\>", replacement="incline")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<indoors\\>", replacement="indoor")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<ingredients\\>", replacement="ingredient")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<intuitions\\>|\\<intuitively\\>",
replacement="intuition")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<invited\\>|\\<invites\\>", replacement="invite")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<invoked\\>", replacement="invoke")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<issues\\>", replacement="issue")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<items\\>", replacement="item")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<journaling\\>|\\<journals\\>",
replacement="journal")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<keeping\\>|\\<kept\\>", replacement="keep")

```

```

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<largest\\>", replacement="large")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<larvaes\\>", replacement="larvae")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<layered\\>|\\<layers\\>", replacement="layer")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<lead\\>|\\<led\\>", replacement="leadership")
#The issue of leaves, leaving, and left. In excerpts, forms of the
verbe "to leave" where changed to "leaving". Leaves as in plant
material was not changed. Left as in non-rigt was unchanged.
#This changes were done directly in excerpts after reading the
context.
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<lets\\>", replacement="let")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<lifted\\>|\\<lifting\\>", replacement="lift") #as in
the action of raising the potential energy of an object, not the
object of transportation
#light as in not heavy changed to non_heavy, light as physical
phenomenon kept, in light of -> in_light_of. Changed directly in
excerpts.
#like split into like (as likeness) and like (as an affective verb
-> like_affect)
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<likewise\\>", replacement="like")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<limited\\>|\\<limits\\>", replacement="limit")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<liquids\\>", replacement="liquid")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<long\\>", replacement="longterm")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<lower\\>", replacement="low")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<mapped\\>", replacement="map") #as in the action
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<maximally\\>", replacement="maximal") #interesting
use...
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<mealworms\\>", replacement="mealworm")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<mechanized\\>", replacement="mechanical")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<meetings\\>", replacement="meeting")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<melted\\>", replacement="melting")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<metacognitive\\>", replacement="metacognition")
#met as in had a meeting changed directly in excerpts.
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<methodological\\>", replacement="methodology")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<midjune\\>|\\<midjanuary\\>",

```

```

replacement="study_month")
#min as in minutes changes directly in excerpts. Always
[number]_minute, as in 20_minute
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<mixed\\>", replacement="mixing") #as in mixing
materials together.
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<moles\\>", replacement="mole") #as in the animal not
the number
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<motioning\\>", replacement="motioned")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<motivate\\>|\\<motivating\\>",
replacement="motivation")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<mounted\\>", replacement="mount") #as in mounting
something on a case
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<moved\\>|\\<movement\\>", replacement="move")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<movies\\>", replacement="movie")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<nearby\\>", replacement="near")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<nests\\>", replacement="nest")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<newtonian\\>", replacement="newton")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<noises\\>", replacement="noise")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<noticed\\>", replacement="notice")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<objectives\\>", replacement="objective")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<obtained\\>", replacement="obtain")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<occurred\\>|\\<occurs\\>", replacement="occur")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<offered\\>", replacement="offer")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<older\\>|\\<olds\\>", replacement="old")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<opened\\>", replacement="open")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<operating\\>", replacement="operate")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<orders\\>", replacement="order") #as in putting
things in order
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<organising\\>|\\<organised\\>|\\<organisational\\>|\\
<organize\\>", replacement="organise")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<ornithologists\\>", replacement="ornithologist")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),

```

```

pattern = "(\\<outdoors\\>)", replacement="outdoor")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<painter\\>|\\<painting\\>)", replacement="paint")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<pennies\\>)", replacement="penny")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<performance\\>)", replacement="perform") #as in doing
something for others to see.
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<petting\\>)", replacement="pet")
#"physical science" -> physics, physical as related to physics ->
"physics". All other instances of "physical" kept. Changes done
directly in excerpts.
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<pieces\\>)", replacement="piece")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<pigs\\>)", replacement="pig")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<planting\\>)", replacement="plant")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<pointing\\>)", replacement="point")
#pose as in pose questions changed to ask in excerpt.
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<possibly\\>)", replacement="possible")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<potentially\\>)", replacement="potential")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<programs\\>)", replacement="program")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<promoted\\>|\\<promoting\\>)", replacement="promote")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<prompting\\>)", replacement="prompt")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<purposes\\>)", replacement="purpose")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<pushing\\>)", replacement="push")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<puzzling\\>)", replacement="puzzle")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<rains\\>|\\<rainfall\\>)", replacement="rain")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<randomly\\>)", replacement="random")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<ranged\\>)", replacement="range")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<ratings\\>)", replacement="rating")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<reactions\\>)", replacement="react")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<readings\\>|\\<reading\\>|\\<read\\>)",
replacement="read")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<readily\\>)", replacement="ready")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),

```

```

pattern = "\\<reasons\\>", replacement="reason")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<recalling\\>", replacement="recall")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<received\\>", replacement="receiving")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<recognised\\>", replacement="recognise")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<records\\>", replacement="record")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<resonant\\|\\<resonated\\>", replacement="resonate")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<respects\\>", replacement="respect")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<responding\\|\\<responded\\|\\<responds\\>",
replacement="respond")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<resulted\\>", replacement="result")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<returning\\>", replacement="return")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<revealed\\>", replacement="reveal")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<rocks\\>", replacement="rock")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<routes\\>", replacement="route")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<routines\\>", replacement="routine")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<safely\\>", replacement="safety")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<samples\\>", replacement="sample")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<sandy\\>", replacement="sand")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<saw\\>|\\<seeing\\>|\\<seen\\>", replacement="see")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<says\\>|\\<said\\>", replacement="say")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<scales\\>", replacement="scale")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<schooling\\>", replacement="school")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<seasonal\\>|\\<seasons\\>", replacement="season")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<sections\\>", replacement="section")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<seeds\\>", replacement="seed")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<senses\\>", replacement="sense")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<separated\\>|\\<seperately\\>",
replacement="separate")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),

```



```

pattern = "(\\<sequences\\>)", replacement="sequence")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<sat\\>|\\<setting\\>)", replacement="set") #as in the
act of setting stuff up
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<shapes\\>)", replacement="shape")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<sharable\\>|\\<sharing\\>|\\<shared\\>)",
replacement="share")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<shells\\>)", replacement="shell")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<significance\\>)", replacement="significant")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<sixth\\>)", replacement="six")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<slowmations\\>)", replacement="slowmation")
#small groups and small group changed to smallgroup directly in
excerpts.
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<smelling\\>|\\<smelly\\>)", replacement="smell")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<snails\\>)", replacement="snail")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<snowfall\\>)", replacement="snow")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<somethings\\>)", replacement="something")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<songs\\>)", replacement="song")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<sorted\\>)", replacement="sort")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<spanned\\>)", replacement="spans")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<specifically\\>)", replacement="specific")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<speeding\\>)", replacement="speed")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<spilled\\>)", replacement="spill")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<splits\\>)", replacement="split")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<spontaneously\\>)", replacement="spontaneous")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<spots\\>)", replacement="spot")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<squeezed\\>)", replacement="squeeze")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<standardize\\>|\\<standards\\>)",
replacement="standard")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<stereotypical\\>)", replacement="stereotype")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<stopped\\>)", replacement="stop")

```

```

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<stored\\>", replacement="store")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<strategies\\>|\\<strategic\\>",
replacement="strategy")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<strengths\\>", replacement="strength")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<stretching\\>|\\<stretched\\>",
replacement="stretch")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<striped\\>", replacement="stripes")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<striving\\>", replacement="strive")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<suitability\\>", replacement="suitable")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<survive\\>", replacement="survival")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<stretching\\>|\\<stretched\\>",
replacement="stretch")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<symbolic\\>|\\<symbols\\>", replacement="symbol")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<table2\\>|\\<table1\\>", replacement="table")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<teams\\>", replacement="team")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<tells\\>", replacement="tell")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<textbook\\>|\\<texts\\>", replacement="text")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<things\\>", replacement="thing")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<thinking\\>|\\<thinks\\>", replacement="think")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<tools\\>", replacement="tool")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<totally\\>", replacement="total")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<towards\\>", replacement="toward")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<toys\\>", replacement="toy")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<tracing\\>", replacement="trace")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<tracks\\>", replacement="track")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<training\\>", replacement="train")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<transformed\\>", replacement="transform")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<transitioning\\>|\\<transitioned\\>",
replacement="transition")

```

```

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<triggered\\>", replacement="triggers")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<trying\\>", replacement="try")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<tubs\\>", replacement="tub")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<turned\\>", replacement="turn") #as in focused their
attention on, whereas "turns" relates to taking turns.
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<twisting\\>|\\<twisted\\>", replacement="twist") #as
in the action of turning something, not "with a twist".
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<underlying\\>", replacement="underlie")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<utilizing\\>|\\<utilized\\>", replacement="utilize")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<valuable\\>|\\<valuing\\>|\\<valued\\>|\\<values\\
\\>", replacement="value") #hmmm..
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<variables\\>", replacement="variable") #as in
concept of "a variable" parameter
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<vignettes\\>", replacement="vignette")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<vocabularies\\>", replacement="vocabulary")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<went\\>", replacement="go")
#whats changed to what is
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<walked\\>|\\<walks\\>|\\<walking\\>)",
replacement="walk") # as in either "to walk" and "a walk".
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<wanted\\>", replacement="want")
#wasnt changed to was not in excerpt
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<watching\\>", replacement="watch")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<weeks\\>|\\<weekly\\>)", replacement="week")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<watching\\>", replacement="watch")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<wooden\\>", replacement="wood")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<worked\\>", replacement="work") #but not "workers"
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<worlds\\>", replacement="world")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<younger\\>", replacement="young")

```

#Splitting words. Since we removed hyphens, some words need to be split.

```

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<subtopic\\>|\\<subtopics\\>)", replacement="sub
topic")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<threephase\\>)", replacement="three phase")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<twophase\\>)", replacement="two phase")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<threeweek\\>)", replacement="three week")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<videotaped\\>)", replacement="video taped")
#theres (as in there's) changed to "there is" directly in excerpts

```

```

#Specific names -> function in study
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<james\\>)", replacement="example_child")
#example_child is a fictional child used in instructional materials.
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<tom\\>)", replacement="example_child")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<john\\>)", replacement="example_child")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<gina\\>)", replacement="example_child")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<tony\\>)", replacement="example_child")

```

```

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<lilly\\>)", replacement="example_animal")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<thelmas\\>)", replacement="example_animal")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<jane\\>)", replacement="study_scientist") #a
rolemodel for children in the study??
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<peter\\>)", replacement="study_scientist")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<chris\\>)", replacement="study_scientist")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<johannah\\>)", replacement="study_child") #a child
observed and analysed in the study
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<lily\\>)", replacement="study_child")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<lucy\\>)", replacement="study_child")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<markus\\>)", replacement="study_child")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<simon\\>)", replacement="study_child")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<susie\\>|\\<susies\\>|\\<susieastheball\\>|\\<susie3\\
\\>)", replacement="study_child")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),

```

```

pattern = "\\<cora\\>", replacement="study_teacher")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<mrstreadwell\\>", replacement="study_teacher")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<mrscasey\\>", replacement="study_teacher")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<becky\\>", replacement="study_teacher")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<shane\\>", replacement="study_teacher")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<ppts\\>", replacement="study_teacher")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<pts\\>", replacement="study_teacher")

```

```

#Changed Child: and other instances of named or specific children
that appear in studies to "study_child".
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<wouassammeeschtrand\\>", replacement="non-english-
sentence")

```

##SYNONYMS

```

allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<Theoretical\\>|\\<theories\\>|\\<theories\\>|\\
\\<theory\\>", replacement="theory")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<certain\\>", replacement="specific")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<elementary\\>", replacement="primary")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<constitue element\\>", replacement="phase")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<inquiry_based\\>|\\<inquirybased\\>|\\<inquiryframed\\
\\>|\\<inquiryoriented\\>", replacement="ibse")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<directed\\>|\\<directing\\>|\\<direct\\>|\\
\\<instructed\\>|\\<instruct\\>|\\<steer\\>)",
replacement="instruct_guide")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<curiosity\\>|\\<interesting\\>|\\<interests\\>|\\
\\<interests\\>|\\<interested\\>", replacement="interest")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<instructors\\>", replacement="educators")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<teacher trainer\\>|\\<pilot centre trainer\\>|\\<the
trainer\\>", replacement="teacher_trainer")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<kids\\>", replacement="child")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<likely\\>|\\<probably\\>", replacement="probable")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "\\<lives\\>|\\<live\\>)", replacement="live_habitat")
#lives as in plural of life -> life.
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),

```

```

pattern = "(\\<pretence\\>|\\<pretend\\>|\\<pretending\\>|\\
\\<makebelieve\\>|\\<played\\>|\\<playing\\>)", replacement="play")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<onus\\>|\\<responsibilities\\>)",
replacement="responsibility")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<papers\\>)", replacement="article") #papers in plural
only used as articles in excerpts.
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<photographing\\>|\\<photographer\\>|\\<photographed\\
\\>|\\<photos\\>|\\<photo\\>|\\<pictogram\\>|\\<pictures\\>)",
replacement="picture")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<playdough\\>)", replacement="playdoh")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<prints\\>)", replacement="print")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<previously\\>|\\<prior\\>)", replacement="previous")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<immediately\\>|\\<promptly\\>)",
replacement="immediate")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<pupils\\>)", replacement="pupil")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<reasoning\\>)", replacement="thinking")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<schoolyard\\>)", replacement="playground")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<sciencey\\>)", replacement="sciencelike")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<book\\>)", replacement="text")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<at times\\>|\\<at other times\\>)",
replacement="sometimes")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<track\\>|\\<trace\\>)", replacement="track_trace")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<tubs\\>|\\<bathtub\\>)", replacement="tub")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<tv\\>)", replacement="television")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<vs\\>)", replacement="versus")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<secondgrade\\>)", replacement="2ndgrade")
allEmpirical <- tm_map(allEmpirical, content_transformer(gsub),
pattern = "(\\<first graders\\>)", replacement="1stgrade")

```

#These words either provide no meaning or are used so many times that they obscure relevant signals.

```

wordstoremove<-
c(stopwords("english"),"can","also","although","may","maybe","moreov

```

```
er","mostly","onto","per se", "really","therefore","though","thus",
"xl011","xl021","xl051","xl071","xn011","xn031","xn051","xn071","xq0
11","xq031","xq041","xq051","xs021","xs091","xs111","xs121",
"2013appendixfp10","20132014","1b","p234","p141")
```

```
#Cleaning up..
```

```
#allFilesx <- tm_map(allFilesx, removeWords, c("endoffile"))
allEmpirical<-tm_map(allEmpirical,stripWhitespace)
```

```
#Function to help make linguistic networks
```

```
#It returns an list of edges in a directed network
```

```
myWordNetwork <- function (txt,j.words) {
```

```
  # Clean data
```

```
  #remove capitalization
```

```
  #corpus.temp <- tm_map(corpus, tolower)
```

```
  #Remove punctuations and other unnecessary things
```

```
  #corpus.removed.punc <- tm_map(corpus.temp, removePunctuation)
```

```
  #Remove numbers
```

```
  #corpus.removed.numb <- tm_map(corpus.removed.punc,
removeNumbers)
```

```
  #Remove Whitespaces
```

```
  #corpus.removed.white <- tm_map(corpus.removed.punc,
stripWhitespace)
```

```
  #corpus <- Corpus(DataframeSource(data.frame(data)))
```

```
  #prepare for stemming (language is english, but TM has a package
for other
```

```
  #languages)
```

```
  #corpus.temp <- corpus.removed.white
```

```
  #corpus.copy <- corpus.temp
```

```
  #corpus.temp <- tm_map(corpus.temp, stemDocument, language =
language)
```

```
  #corpus.final <- tm_map(corpus.temp, stemCompletion,
```

```
  # dictionary = corpus.copy)
```

```
  #corpus.final<-corpus.temp
```

```
  #Prepare to remove "stopwords" such as "A", "The", e.t.c.
```

```
  # keep "declarative words"
```

```
  #my.stopwords <- stopwords("english")
```

```
  #my.stopwords <- my.stopwords[!(my.stopwords %in% j.words)]
```

```
  #Remove stopwrods
```

```
  #corpus.crop <-
```

```
tm_map(corpus.removed.white,removeWords,c(my.stopwords))
```

```
  # Create edge list for export
```

```
  edge.list <-strsplit(as.matrix(txt), split = " ")[[1]]
```

```
  #Remove unnecessary
```

```
  #edge.list<-as.matrix(corpus.final[[1]])
```

```
  #edge.list <- edge.list[edge.list!=""]
```

```
  #edge.list<-strsplit(edge.list,split=" ")
```

```

# index of "declarative words" (the -1 is because we're removing
first and
# last word to make it into a word-network
node.num <- length(edge.list[!(edge.list %in% j.words)]) - 1
#Create matrix to be exported
export.edge.list <- array("",dim=c(node.num,2))
#Set column names as per Gephi requirements
#colnames(export.edge.list) <- c("Source","Target","Label")
# Put source word except the "joining words into the matrix to be
exported
export.edge.list[,1] <- edge.list[!(edge.list %in% j.words)][-
length(edge.list[!(edge.list %in% j.words)])]
# put the target word except the "joining words into the matrix to
be exported
export.edge.list[,2] <- edge.list[!(edge.list %in% j.words)][-1]

#Go through the joining words and put them in
# for(i in j.words) {
#   for (j in which(edge.list %in% i)) {
#     export.edge.list[j - sum(!which(edge.list %in% j.words) > j),
3] <- i
#   }
# }
return(export.edge.list)
}

```

```

#Applying the function to each excerpt
edgelistsEmpirical<-
lapply(allEmpirical,myWordNetwork,j.words=wordstoremove)
graphsEmpirical<-list()
for (i in 1:35){
  graphsEmpirical[[i]]<-graph.edgelist(edgelists[[i]],directed=T)
}

```

```

#Bind all excerpts together to a single edge list
allEdgeEmpirical<-
rbind(edgelistsEmpirical[[1]],edgelistsEmpirical[[2]],edgelistsEmpir
ical[[3]],edgelistsEmpirical[[4]],edgelistsEmpirical[[5]],edgelistsE
mpirical[[6]],edgelistsEmpirical[[7]],edgelistsEmpirical[[8]],edgeli
stsEmpirical[[9]],edgelistsEmpirical[[10]],

```

```

edgelistsEmpirical[[11]],edgelistsEmpirical[[12]],edgelistsEmpirical
[[13]],edgelistsEmpirical[[14]],edgelistsEmpirical[[15]],edgelistsEm
pirical[[16]],edgelistsEmpirical[[17]],edgelistsEmpirical[[18]],edge
listsEmpirical[[19]],edgelistsEmpirical[[20]],

```

```

edgelistsEmpirical[[21]],edgelistsEmpirical[[22]],edgelistsEmpirical
[[23]],edgelistsEmpirical[[24]],edgelistsEmpirical[[25]],edgelistsEm
pirical[[26]],edgelistsEmpirical[[27]],edgelistsEmpirical[[28]],edge
listsEmpirical[[29]],edgelistsEmpirical[[30]],

```

```

edgelistsEmpirical[[31]],edgelistsEmpirical[[32]],edgelistsEmpirical

```



```

[[33]],edgelistsEmpirical[[34]],edgelistsEmpirical[[35]])

#make separate networks for each article. Not used in manuscript
articlesE<-lapply(edgelistsEmpirical,graph.edgelist,directed=T)
for (i in 1:length(articlesE)){
  E(articlesE[[i]])$weight<-1
  articlesE[[i]]<-simplify(articlesE[[i]],edge.attr.comb="sum")
  articlesE[[i]]<-
delete.vertices(articlesE[[i]],which(V(articlesE[[i]])
$name=="break"))
}

article01E<-graph.edgelist(edgelistsEmpirical[[1]],directed=T)
article02E<-graph.edgelist(edgelistsEmpirical[[2]],directed=T)
article03E<-graph.edgelist(edgelistsEmpirical[[3]],directed=T)
article04E<-graph.edgelist(edgelistsEmpirical[[4]],directed=T)
article05E<-graph.edgelist(edgelistsEmpirical[[5]],directed=T)
article06E<-graph.edgelist(edgelistsEmpirical[[6]],directed=T)
article07E<-graph.edgelist(edgelistsEmpirical[[7]],directed=T)
article08E<-graph.edgelist(edgelistsEmpirical[[8]],directed=T)
article09E<-graph.edgelist(edgelistsEmpirical[[9]],directed=T)
article10E<-graph.edgelist(edgelistsEmpirical[[10]],directed=T)
article11E<-graph.edgelist(edgelistsEmpirical[[11]],directed=T)
article12E<-graph.edgelist(edgelistsEmpirical[[12]],directed=T)
article13E<-graph.edgelist(edgelistsEmpirical[[13]],directed=T)
article14E<-graph.edgelist(edgelistsEmpirical[[14]],directed=T)
article15E<-graph.edgelist(edgelistsEmpirical[[15]],directed=T)
article16E<-graph.edgelist(edgelistsEmpirical[[16]],directed=T)
article17E<-graph.edgelist(edgelistsEmpirical[[17]],directed=T)
article18E<-graph.edgelist(edgelistsEmpirical[[18]],directed=T)
article19E<-graph.edgelist(edgelistsEmpirical[[19]],directed=T)
article20E<-graph.edgelist(edgelistsEmpirical[[20]],directed=T)
article21E<-graph.edgelist(edgelistsEmpirical[[21]],directed=T)
article22E<-graph.edgelist(edgelistsEmpirical[[22]],directed=T)
article23E<-graph.edgelist(edgelistsEmpirical[[23]],directed=T)
article24E<-graph.edgelist(edgelistsEmpirical[[24]],directed=T)
article25E<-graph.edgelist(edgelistsEmpirical[[25]],directed=T)
article26E<-graph.edgelist(edgelistsEmpirical[[26]],directed=T)
article27E<-graph.edgelist(edgelistsEmpirical[[27]],directed=T)
article28E<-graph.edgelist(edgelistsEmpirical[[28]],directed=T)
article29E<-graph.edgelist(edgelistsEmpirical[[29]],directed=T)
article30E<-graph.edgelist(edgelistsEmpirical[[30]],directed=T)
article31E<-graph.edgelist(edgelistsEmpirical[[31]],directed=T)
article32E<-graph.edgelist(edgelistsEmpirical[[32]],directed=T)
article33E<-graph.edgelist(edgelistsEmpirical[[33]],directed=T)
article34E<-graph.edgelist(edgelistsEmpirical[[34]],directed=T)
article35E<-graph.edgelist(edgelistsEmpirical[[35]],directed=T)

#make combined network
allNetEmpirical<-graph.edgelist(allEdgeEmpirical,directed=T)
E(allNetEmpirical)$weight<-1
allNetEmpirical<-delete.vertices(allNetEmpirical,v =
which(V(allNetEmpirical)$name=="break"))
allNetEmpirical<-

```

```
simplify(allNetEmpirical,remove.multiple=T,edge.attr.comb=list(weigh  
t="sum"))  
prE<-page.rank(allNetEmpirical)  
V(allNetEmpirical)$pr<-prE$vector  
sort(prE$vector,decreasing = T)[1:10]  
fgE<-fastgreedy.community(as.undirected(allNetEmpirical))  
write.csv(V(allNetEmpirical)$name,"listNodesEmpirical.csv")
```