Input: LCh, length(LCh)=7

SegmentId	Segment Start Time	Segment End Time	Segment Transcript		
mWo-G3UQ-zU1	0.00	0.19	My dad was always the rock of the family. So seeing him struggle to breathe, it was really heart-breaking. My dad was always so strong and independent. He fished with us, played tennis with us. He	Family	SocialRelationship
				Dad	SocialRelationship
				Dad	SocialRelationship
mWo-G3UQ-zU2	0.23	0.42	He started to have less energy. He would lose his breath a little more easily. He was on the couch. He had the oxygen mask. He wasn't	Dad	SocialRelationship
mWo-G3UQ-zU3	0.45	1.00	Nobody was really able to accurately diagnose him. I think that was probably the scariest thing is not knowing what it was. We didn't know what was going to happen. Was he going to be OK? Was he going to make it? We knew we needed a place that had more experience. So they recommended the Temple Lung Center.		
mWo-G3UQ-zU4	1.03	1.28	And that was the best decision we ever made. Immediately you could feel a difference at Temple. From the doctors to the testing that was done there. We just knew he was in the right place. He was going to get the best care he could. So I think at Temple Lung Center they just tend to see more cases like his.	Temple	PersonalValuesAndBeliefs
				Temple	PersonalValuesAndBeliefs
mWo-G3UQ-zU5	1.33	1.53	Things that are a little bit more rare. So they seem to have more knowledge. Just right off the bat they seemed to have a better understanding of what was going on with him. They really came up with a plan for him, how they could make him better, how they could treat him, and I felt like they found the right mix for him. You know, it was a combination of medicine, pulmonary therapy, oxygen.		

Aggregation Algorithm tracing

i	s1=[FC]	S1 Duration	s2[FC]	S2 Duration	intersection (S1[2], S2[2])	newSeg	gap	AggFC	AggFT
0	[]	19	[]			[]	[]	[]	[]
	mWo-G3UQ-zU1[Family, Dad]								
1			mWo-G3UQ-zU2=[Dad]	11	[Famiilt, Dad]∩ [Dad]=[Dad]			Dad	SocialRelationship
1	[]		[]						
2			mWo-G3UQ-zU3=[]	15	[Dad]∩ []=[]				
3			mWo-G3UQ-zU4=[Temple]	25	[Dad]∩ [Tample]=[]				

i+1< 7 (length (LChV5))

i (1+1)< 7 (length (LChV5))

i (2+1)< 7(length(LChV5))

i (3+1) < 7 (length (LCh))

[[mWo-G3UQ-zU1,00.00, 00.19,[My dad was always the rock of the family. So seeing him struggle to breathe, it was really heart-breaking. My dad was always so strong and independent. He fished with us, played tennis with us. He was always very active. A few years ago, we started to notice a change in my dad.], [mWo-G3UQ-zU2, 0.23, 0.42, [He started to have less energy. He would lose his breath a little more easily. He was on the couch. He had the oxygen mask. He wasn't able to do those things. It really was a shock to us. My dad was going downhill very quickly, and we knew something had to be done. He was in and out of local hospitals a couple of times.]]]

[[**mWo-G3UQ-zU1**,00.00, 00.19,[My dad was always the rock of the family. So seeing him struggle to breathe, it was really heart-breaking. My dad was always so strong and independent. He fished with us, played tennis with us. He was always very active. A few years ago, we started to notice a change in my dad.], [**mWo-G3UQ-zU2**, 0.23, 0.42, [He started to have less energy. He would lose his breath a little more easily. He was on the couch. He had the oxygen mask. He wasn't able to do those things. It really was a shock to us. My dad was going downhill very quickly, and we knew something had to be done. He was in and out of local hospitals a couple of times.]]]

[[mWo-G3UQ-zU3, 00.45, 1.00, [Nobody was really able to accurately diagnose him. I think that was probably the scariest thing is not knowing what it was. We didn't know what was going to happen. Was he going to be OK? Was he going to make it? We knew we needed a place that had more experience. So they recommended the Temple Lung Center.]

[[mWo-G3UQ-zU3, 00.45, 1.00, [Nobody was really able to accurately diagnose him. I think that was probably the scariest thing is not knowing what it was. We didn't know what was going to happen. Was he going to be OK? Was he going to make it? We knew we needed a place that had more experience. So they recommended the Temple Lung Center.], [mWo-

Output: LAgg

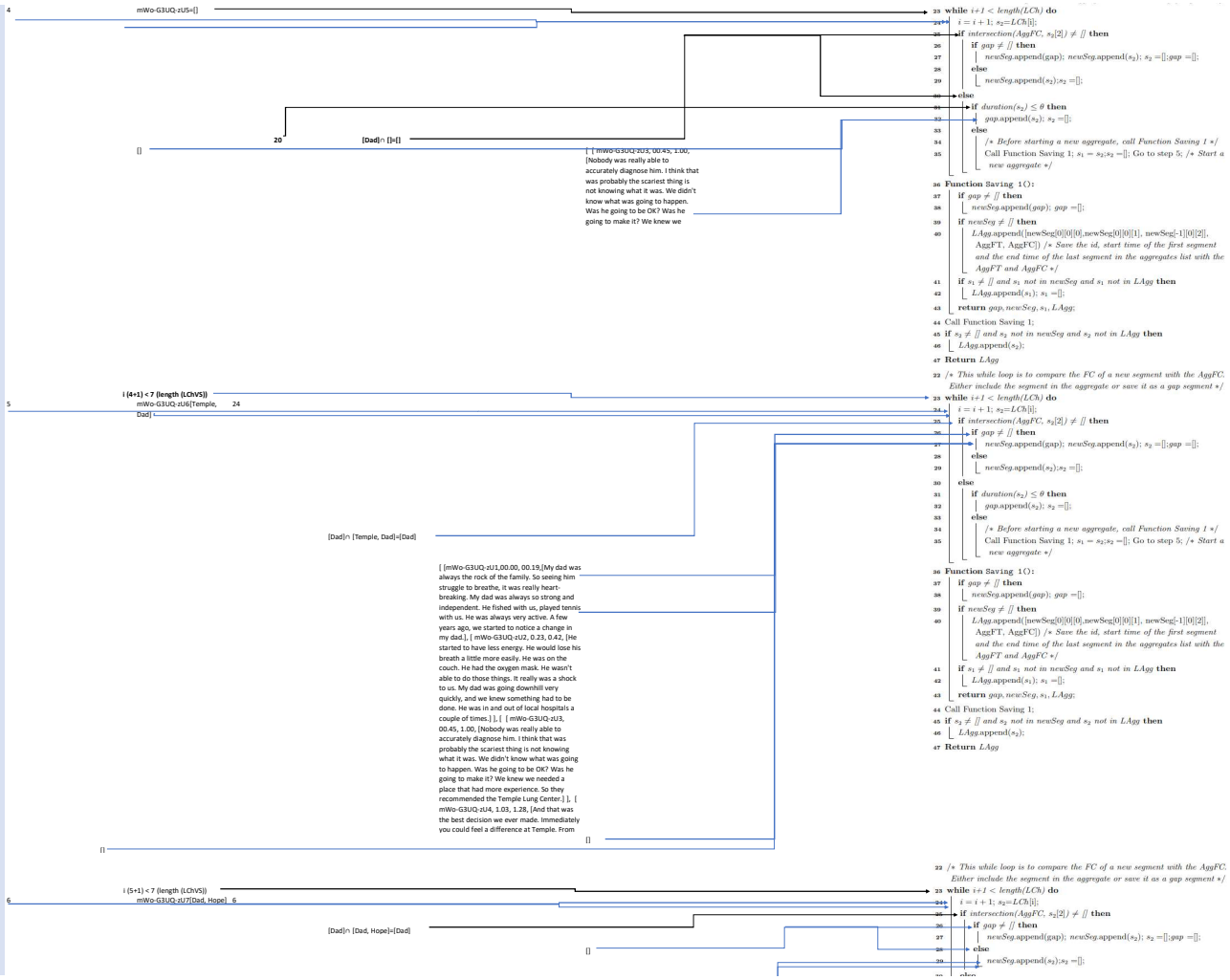
Data: List of characterised video segments LCh which is the output of Algorithm 2. Each characterised segment LCh_i has the following elements: at position 0 is the list of [segmentId, start time, end time, transcript], at positions 1 and 2 are the lists of the Focus Topics (FT) and the Focus Concepts (FC), respectively.
Result: List of aggregated video segments ($LAgg$).

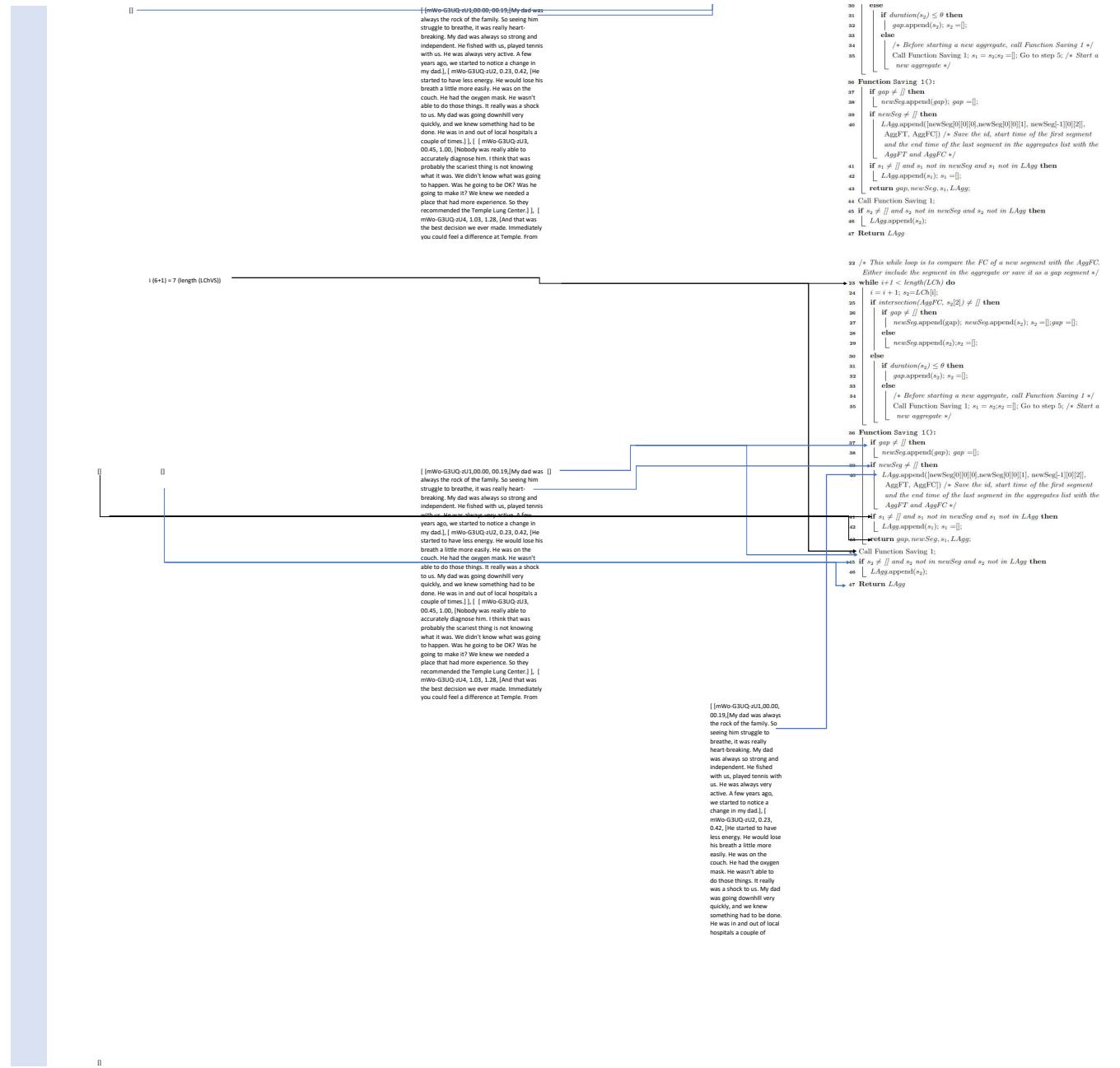
$i = 0$; gap=[]; $newSeg$= [] /* *Temporary holder of the aggregates* */
$LAgg$=[]; $\theta = 30$ /* *Setting to 30 seconds duration* */
$AggFT$=[] ; $AggFC$=[]; /* *AggFT and AggFC are the Focus Topic and Focus Concept of the aggregates, respectively* */
while $i + 1 < length(LCh)$ **do**
  $s_1 = LCh[i]$ /* *Check the first segment s_1 has a FC* */
  if $s_1[2] = []$ **then**
    /* *No Focus Concepts (FC), save s_1 as a single segment* */
    $LAgg$.append(s_1); $i = i + 1$; go to step 3;
  if $i+1 < length(LCh)$ **then**
    $i = i + 1$; $s_2 = LCh[i]$ /* *Take the adjacent segment* */
  else
    go to step 44 /* *If it is the end of the list, do the required saving* */
  if $intersection(s_1[2], s_2[2]) \neq []$ **then**
    /* *Aggregate the adjacent segment and save the FC to AggFC and FT to AggFT* */
    $AggFC$=intersection($s_1[2]$, $s_2[2]$); $AggFT$=intersection($s_1[1]$, $s_2[1]$);
    $newSeg$.append(s_1); $newSeg$.append(s_2); s_1 =[]; s_2 =[]; got to 23 /* *Exit this loop and start to read one segment at a time and compare its FC with the AggFC* */
  else
    /* *Either save s_2 as a gap segment or save s_1 as a single segment and make $s_1 = s_2$. In both cases read a new s_2* */
    if $(s_2[0][2]- s_2[0][1]) \leq \theta$ **then**
      gap.append(s_2); s_2 =[]; go to step 8;
    else
      $LAgg$.append(s1); $s_1 = s_2$; $i = i + 1$; go to step 8;
/* *This while loop is to compare the FC of a new segment with the AggFC. Either include the segment in the aggregate or save it as a gap segment* */
while $i+1 < length(LCh)$ **do**
  $i = i + 1$; s_2=$LCh[i]$;
  if $intersection(AggFC, s_2[2]) \neq []$ **then**
    if $gap \neq []$ **then**
      $newSeg$.append(gap); $newSeg$.append(s_2); s_2 =[];gap =[];
    else
      $newSeg$.append(s_2);s_2 =[];
  else
    if $duration(s_2) \leq \theta$ **then**
      gap.append(s_2); s_2 =[];
    else
      /* *Before starting a new aggregate, call Function Saving 1* */
      Call Function Saving 1; $s_1 = s_2$;s_2 =[]; Go to step 5; /* *Start a new aggregate* */
Function Saving 1():
  if $gap \neq []$ **then**
    $newSeg$.append(gap); gap =[];
  if $newSeg \neq []$ **then**
    $LAgg$.append([newSeg[0][0][0],newSeg[0][0][1], newSeg[-1][0][2], AggFT, AggFC]) /* *Save the id, start time of the first segment and the end time of the last segment in the aggregates list with the AggFT and AggFC* */
  if $s_1 \neq []$ and s_1 *not in newSeg and* s_1 *not in* $LAgg$ **then**
    $LAgg$.append(s_1); s_1 =[];
  return gap, $newSeg$, s_1, $LAgg$;
Call Function Saving 1;
if $s_2 \neq []$ *and* s_2 *not in newSeg and* s_2 *not in* $LAgg$ **then**
  $LAgg$.append(s_2);
Return $LAgg$

/* *This while loop is to compare the FC of a new segment with the AggFC. Either include the segment in the aggregate or save it as a gap segment* */
while $i+1 < length(LCh)$ **do**
  $i = i + 1$; s_2=$LCh[i]$;
  if $intersection(AggFC, s_2[2]) \neq []$ **then**
    if $gap \neq []$ **then**
      $newSeg$.append(gap); $newSeg$.append(s_2); s_2 =[];gap =[];
    else
      $newSeg$.append(s_2);s_2 =[];
  else
    if $duration(s_2) \leq \theta$ **then**
      gap.append(s_2); s_2 =[];
    else
      /* *Before starting a new aggregate, call Function Saving 1* */
      Call Function Saving 1; $s_1 = s_2$;s_2 =[]; Go to step 5; /* *Start a new aggregate* */
Function Saving 1():
  if $gap \neq []$ **then**
    $newSeg$.append(gap); gap =[];
  if $newSeg \neq []$ **then**
    $LAgg$.append([newSeg[0][0][0],newSeg[0][0][1], newSeg[-1][0][2], AggFT, AggFC]) /* *Save the id, start time of the first segment and the end time of the last segment in the aggregates list with the AggFT and AggFC* */
  if $s_1 \neq []$ and s_1 *not in newSeg and* s_1 *not in* $LAgg$ **then**
    $LAgg$.append(s_1); s_1 =[];
  return gap, $newSeg$, s_1, $LAgg$;
Call Function Saving 1;
if $s_2 \neq []$ *and* s_2 *not in newSeg and* s_2 *not in* $LAgg$ **then**
  $LAgg$.append(s_2);
Return $LAgg$

/* *This while loop is to compare the FC of a new segment with the AggFC. Either include the segment in the aggregate or save it as a gap segment* */

mWo-G3UQ-zU6	1.58	2.22	And they really knew what would get him back to where he was. I love watching my kids with Grandpa and seeing them play with him and interact with him. And now knowing that he'll be around to see all those special moments that are still to come in their life is just amazing. I'm grateful to Temple because without Temple I don't think my dad would be where he is today.	Temple	PersonalValuesAndBeliefs
				Temple	PersonalValuesAndBeliefs
				Dad	SocialRelationship
mWo-G3UQ-zU7	2.25	2.31	They gave him his life back. We got our dad back. The grandkids got Grandpa back. They didn't just give us hope. They gave us him, which is great.	Dad	SocialRelationship
				Hope	PsychologicalHealth




[]
[[mWo-G3UQ-zU1,00.00, 00.19,[My dad was always the rock of the family. So seeing him struggle to breathe, it was really heart-breaking. My dad was always so strong and independent. He fished with us, played tennis with us. He was always very active. A few years ago, we started to notice a change in my dad.], [mWo-G3UQ-zU2, 0.23, 0.42, [He started to have less energy. He would lose his breath a little more easily. He was on the couch. He had the oxygen mask. He wasn't able to do those things. It really was a shock to us. My dad was going downhill very quickly, and we knew something had to be done. He was in and out of local hospitals a couple of times.]], [[mWo-G3UQ-zU3, 00.45, 1.00, [Nobody was really able to accurately diagnose him. I think that was probably the scariest thing is not knowing what it was. We didn't know what was going to happen. Was he going to be OK? Was he going to make it? We knew we needed a place that had more experience. So they recommended the Temple Lung Center.]], [mWo-G3UQ-zU4, 1.03, 1.28, [And that was the best decision we ever made. Immediately you could feel a difference at Temple. From
else
if duration(s2) ≤ θ then
gap.append(s2); s2 =[];
else
/* Before starting a new aggregate, call Function Saving 1 */
Call Function Saving 1; s1 = s2;s2 =[]; Go to step 5; /* Start a new aggregate */
Function Saving 1():
if gap ≠ // then
newSeg.append(gap); gap =[];
if newSeg ≠ // then
LAgg.append([newSeg[0][0][0],newSeg[0][0][1], newSeg[-1][0][2], AggFT, AggFC]) /* Save the id, start time of the first segment and the end time of the last segment in the aggregates list with the AggFT and AggFC */
if s1 ≠ // and s1 not in newSeg and s1 not in LAgg then
LAgg.append(s1); s1 =[];
return gap, newSeg, s1, LAgg;
Call Function Saving 1;
if s2 ≠ // and s2 not in newSeg and s2 not in LAgg then
LAgg.append(s2);
Return LAgg
i (6+1) = 7 (length (LChVS))
/* This while loop is to compare the FC of a new segment with the AggFC. Either include the segment in the aggregate or save it as a gap segment */
while i+1 < length(LCh) do
i = i + 1; s2=LCh[i];
if intersection(AggFC, s2[2]) ≠ // then
if gap ≠ // then
newSeg.append(gap); newSeg.append(s2); s2 =[];gap =[];
else
newSeg.append(s2);s2 =[];
else
if duration(s2) ≤ θ then
gap.append(s2); s2 =[];
else
/* Before starting a new aggregate, call Function Saving 1 */
Call Function Saving 1; s1 = s2;s2 =[]; Go to step 5; /* Start a new aggregate */
Function Saving 1():
if gap ≠ // then
newSeg.append(gap); gap =[];
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if s1 ≠ // and s1 not in newSeg and s1 not in LAgg then
LAgg.append(s1); s1 =[];
return gap, newSeg, s1, LAgg;
Call Function Saving 1;
if s2 ≠ // and s2 not in newSeg and s2 not in LAgg then
LAgg.append(s2);
Return LAgg
[]
[]
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