**1st similarity**

TYPE 1 : window parser TYPE 2 :context parser TYPE 3 : Sentence parser

CAR

|  |  |  |
| --- | --- | --- |
| TYPE 1 | TYPE 2 | TYPE 3 |
|  |  |  |
| touring  accident  crash  driver  racing  race  passenger  motor  bomb  stock  drive  sport  car  buy  park  championship  hit  train  sell  police | accident\_compmod\_up  concept\_compmod\_down  race\_dobj\_up  car\_conj\_down  crash\_compmod\_up  bomb\_compmod\_up  car\_conj\_up  hit\_adpmod\_by\_up  race\_amod\_down  drive\_dobj\_up  drive\_partmod\_down  cable\_compmod\_down  formula\_compmod\_down  racing\_compmod\_up  race\_compmod\_down  passenger\_compmod\_down  driver\_compmod\_up  steal\_dobj\_up  stock\_compmod\_down  motor\_compmod\_down | car  racing  driver  accident  motor  crash  race  drive  passenger  vehicle  engine  sport  championship  front  train  police  model  sell  production  park |

BUS

|  |  |  |
| --- | --- | --- |
| TYPE 1 | TYPE 2 | TYPE 3 |
|  |  |  |
| interchange  transit  terminal  route  operator  stop  service  bus  rail  operate  connect  station  transport  passenger  london  travel  express  regular  line  stand | stop\_compmod\_up  interchange\_compmod\_up  route\_compmod\_up  terminal\_compmod\_up  stand\_compmod\_up  transit\_compmod\_up  depot\_compmod\_up  operator\_compmod\_up  service\_compmod\_up  travel\_partmod\_down  tour\_compmod\_down  express\_compmod\_down  driver\_compmod\_up  train\_conj\_down  crash\_compmod\_up  connect\_nsubj\_up  get\_adpmod\_on\_up  trip\_compmod\_up  serve\_adpmod\_by\_up  lane\_compmod\_up | bus  transit  terminal  route  metro  transport  passenger  stop  service  connect  operate  rail  station  airport  express  london  travel  line  train  run |

HOSPITAL

|  |  |  |
| --- | --- | --- |
| TYPE 1 | TYPE 2 | TYPE 3 |
|  |  |  |
| psychiatric  bed  teaching  hospital  rush  memorial  medical  patient  doctor  care  general  st  royal  private  child  die  london  health  ship  locate | hospital\_conj\_up  hospital\_conj\_down  bed\_compmod\_up  teaching\_compmod\_down  memorial\_compmod\_down  take\_adpmod\_to\_up  admit\_adpmod\_to\_up  die\_adpmod\_at\_up  visit\_adpmod\_in\_up  massachusetts\_compmod\_down  general\_compmod\_down  child\_poss\_down  spend\_adpmod\_in\_up  regional\_compmod\_down  work\_adpmod\_at\_up  die\_adpmod\_in\_up  staff\_compmod\_up  trust\_compmod\_up  university\_compmod\_down  nearby\_amod\_down | psychiatric  hospital  bed  medical  patient  care  health  doctor  facility  die  private  center  general  st  child  royal  building  university  locate  london |

HOTEL

|  |  |  |
| --- | --- | --- |
| TYPE 1 | TYPE 2 | TYPE 3 |
|  |  |  |
| hilton  casino  luxury  hotel  plaza  restaurant  resort  room  chain  stay  grand  convert  guest  bar  purchase  owner  historic  management  store  operate | hotel\_conj\_down  luxury\_compmod\_down  restaurant\_conj\_down  hotel\_conj\_up  stay\_adpmod\_at\_up  palace\_compmod\_down  room\_compmod\_up  convert\_adpmod\_into\_up  chain\_compmod\_up  chain\_adpmod\_of\_up  purchase\_dobj\_up  house\_compmod\_down  hold\_adpmod\_at\_up  building\_conj\_up  management\_conj\_down  spring\_compmod\_down  park\_compmod\_down  stay\_adpmod\_in\_up  star\_compmod\_down  historic\_amod\_down | hotel  resort  restaurant  room  chain  guest  stay  purchase  grand  building  operate  build  street  house  office  locate  park  open  york  site |

GUN

|  |  |  |
| --- | --- | --- |
| TYPE 1 | TYPE 2 | TYPE 3 |
|  |  |  |
| anti-aircraft  anti-tank  machine  turret  ammunition  barrel  gun  battery  rifle  deck  rose  artillery  n  fire  mount  shot  heavy  tank  enemy  crew | machine\_compmod\_down  arm\_adpmod\_with\_up  gun\_conj\_up  weapon\_conj\_down  fire\_nsubj\_up  n\_compmod\_up  lewis\_compmod\_down  mount\_dobj\_up  fire\_dobj\_up  shield\_compmod\_up  tank\_compmod\_down  artillery\_compmod\_down  fire\_compmod\_up  point\_dobj\_up  battery\_compmod\_up  light\_amod\_down  pull\_dobj\_up  crew\_compmod\_up  fit\_adpmod\_with\_up  heavy\_amod\_down | anti-aircraft  turret  gun  machine  ammunition  rifle  battery  artillery  fire  mount  weapon  shot  tank  shoot  heavy  arm  crew  ship  capture  carry |

BOMB

|  |  |  |
| --- | --- | --- |
| TYPE 1 | TYPE 2 | TYPE 3 |
|  |  |  |
| detonate  explode  atomic  disposal  hydrogen  explosion  explosive  raid  sink  pipe  drop  suicide  bomb  nuclear  damage  plane  target  destroy  attack  car | explode\_nsubj\_up  atomic\_amod\_down  hydrogen\_compmod\_down  sink\_conj\_down  hit\_adpmod\_by\_up  drop\_dobj\_up  pipe\_compmod\_down  damage\_adpmod\_by\_up  destroy\_adpmod\_by\_up  attack\_compmod\_up  raid\_amod\_up  explosive\_amod\_down  drop\_nsubjpass\_up  attach\_partmod\_down  raid\_compmod\_up  target\_dobj\_down  car\_compmod\_down  damage\_conj\_down  ship\_nsubjpass\_down  nuclear\_amod\_down | detonate  explode  atomic  bomb  bombing  explosion  injure  bomber  raid  drop  nuclear  target  aircraft  kill  damage  destroy  attack  mission  car  hit |

HORSE

|  |  |  |
| --- | --- | --- |
| TYPE 1 | TYPE 2 | TYPE 3 |
|  |  |  |
| thoroughbred  rid  riding  racing  cattle  ride  rider  breed  stable  artillery  race  brigade  wild  regiment  dark  guard  horse  light  dead  comic | rid\_dobj\_up  racing\_compmod\_up  riding\_compmod\_up  artillery\_compmod\_up  mount\_adpmod\_on\_up  rider\_compmod\_up  brigade\_compmod\_up  race\_compmod\_up  dead\_amod\_down  wild\_amod\_down  comic\_compmod\_up  win\_infmod\_down  light\_compmod\_down  steal\_dobj\_up  race\_compmod\_down  guard\_compmod\_up  team\_adpmod\_of\_up  champion\_compmod\_down  train\_dobj\_up  regiment\_compmod\_up | thoroughbred  horse  rid  rider  breed  racing  ride  cavalry  bombay  regiment  brigade  race  light  animal  australian  white  royal  run  age  event |
|  |  |  |

FOX

|  |  |  |
| --- | --- | --- |
| TYPE 1 | TYPE 2 | TYPE 3 |
|  |  |  |
| hound  fox  20th  news  affiliate  sport  net  nbc  abc  channel  network  programming  kid  morning  soccer  corporation  century  tv  radio  charles | net\_compmod\_up  news\_compmod\_up  affiliate\_compmod\_up  sport\_compmod\_up  century\_compmod\_down  programming\_compmod\_up  kid\_compmod\_up  reservation\_compmod\_up  channel\_compmod\_up  20th\_amod\_down  matthew\_compmod\_down  switch\_adpmod\_to\_up  air\_adpmod\_on\_up  break\_compmod\_up  network\_compmod\_up  radio\_compmod\_up  warren\_compmod\_down  spirit\_amod\_up  tv\_compmod\_up  picture\_compmod\_up | fox  cbs  nbc  abc  affiliate  sport  news  programming  20th  channel  network  broadcast  television  tv  originally  studio  radio  century  air  episode |

TABLE

|  |  |  |
| --- | --- | --- |
| TYPE 1 | TYPE 2 | TYPE 3 |
|  |  |  |
| picnic  periodic  tennis  table  column  content  bottom  chair  medal  round  list  top  water  data  mountain  finish  league  show  championship  turn | content\_adpmod\_of\_down  medal\_compmod\_down  periodic\_amod\_down  table\_adpmod\_of\_up  table\_adpmod\_of\_down  round\_compmod\_down  database\_compmod\_down  knight\_adpmod\_of\_up  top\_dobj\_up  list\_conj\_up  top\_adpmod\_of\_up  operating\_compmod\_down  list\_nsubj\_up  show\_adpmod\_in\_up  following\_amod\_down  follow\_amod\_down  water\_compmod\_down  half\_adpmod\_of\_up  list\_adpmod\_in\_up  turn\_dobj\_up | table  tennis  row  column  following  content  medal  finish  list  top  round  contain  water  league  section  place  information  single  player  page |

BOWL

|  |  |  |
| --- | --- | --- |
| TYPE 1 | TYPE 2 | TYPE 3 |
|  |  |  |
| right-arm  fiesta  right-handed  super  batsman  gator  quiz  pro  alley  rose  bowl  sugar  cotton  orange  wicket  inning  consecutive  ball  victory  ring | rose\_compmod\_down  pro\_compmod\_down  sugar\_compmod\_down  super\_compmod\_down  subdivision\_compmod\_up  orange\_compmod\_down  cotton\_compmod\_down  inning\_adpmod\_in\_down  game\_appos\_down  independence\_compmod\_down  selection\_compmod\_up  holiday\_compmod\_down  victory\_adpmod\_in\_up  ring\_compmod\_up  classic\_compmod\_up  copper\_compmod\_down  appearance\_compmod\_up  victory\_compmod\_up  ball\_dobj\_down  ball\_amod\_up | bcs  fiesta  bowl  super  batsman  wicket  rose  pro  sugar  nfl  orange  ball  yard  stadium  victory  florida  championship  game  football  conference |

GUITAR

|  |  |  |
| --- | --- | --- |
| TYPE 1 | TYPE 2 | TYPE 3 |
|  |  |  |
| acoustic  bass  banjo  riff  harmonica  vocal  rhythm  electric  keyboard  percussion  backing  gibson  drum  solo  violin  piano  guitar  playing  hero  tune | vocal\_conj\_down  vocal\_conj\_up  bass\_conj\_down  bass\_compmod\_down  acoustic\_amod\_down  solo\_compmod\_up  guitar\_conj\_down  electric\_amod\_down  lead\_compmod\_down  guitar\_conj\_up  piano\_conj\_down  replace\_adpmod\_on\_up  playing\_compmod\_up  hero\_compmod\_up  signature\_compmod\_down  drum\_conj\_up  feature\_adpmod\_on\_up  play\_dobj\_up  join\_adpmod\_on\_up  pick\_compmod\_up | bass  guitar  acoustic  percussion  vocal  drum  keyboard  rhythm  electric  piano  string  guitarist  solo  instrument  band  musician  sound  play  rock  album |

PIANO

|  |  |  |
| --- | --- | --- |
| TYPE 1 | TYPE 2 | TYPE 3 |
|  |  |  |
| sonata  concerto  viola  op  cello  accompaniment  violin  clarinet  lesson  solo  organ  orchestra  guitar  piano  arrangement  bass  string  chamber  voice  vocal | voice\_conj\_up  solo\_compmod\_up  orchestra\_conj\_down  toy\_compmod\_down  guitar\_conj\_up  guitar\_conj\_down  grand\_amod\_down  bass\_conj\_down  trio\_compmod\_up  vocal\_conj\_down  teacher\_compmod\_up  arrangement\_compmod\_up  drum\_conj\_up  roll\_compmod\_up  study\_dobj\_up  solo\_compmod\_down  acoustic\_amod\_down  competition\_compmod\_up  no\_compmod\_up  score\_compmod\_up | cello  sonata  op  concerto  viola  violin  piano  lesson  keyboard  solo  guitar  organ  orchestra  drum  instrument  bass  composition  chamber  string  vocal |

2nd similarity

+ : good judgement - : bad judgement

+ : semantics + : topicaly

CAR

|  |  |  |
| --- | --- | --- |
| TYPE 1 | TYPE 2 | TYPE 3 |
|  |  |  |
| Car + +  Driver - +  Racing - +  Formula - +  Automobile + +  Stock - -  Injure - +  Auto + +  Race - +  Truck + -  Motorcycle + -  Vehicle + +  Motor - +  Drunk - -  Nascar + +  Toyota + +  Ford + +  Buy - -  Lap + +  Kill - - | Car + +  Truck + -  Vehicle + +  Motorcycle + -  Driver - +  Van + +  Motor - +  Auto + +  Racing - +  Bike + -  Automobile + +  Horse + -  Traffic - +  Carriage + +  Stock - -  Bicycle + -  Thoroughbred - -  Boat + -  Three - -  Race - + | Car + +  Driver - +  Racing - +  Drive - +  Motor - +  Ford + +  Vehicle + +  Truck + -  Crash - +  Automobile + +  Auto + +  Race - +  Formula - +  gt + +  nascar + +  toyota + +  cam - -  lap + +  chassis - +  injure - - |

MAP = 0.564

MAP = 0.839

BUS

|  |  |  |
| --- | --- | --- |
| TYPE 1 | TYPE 2 | TYPE 3 |
|  |  |  |
| bus  commuter  train  freight  rail  passenger  transport  terminal  ferry  tram  transit  line  operate  operator  route  metro  taxi  hub  connect  railway | bus  train  tram  commuter  rail  ferry  taxi  passenger  transit  truck  freight  subway  shuttle  metro  shipping  cable  business  railroad  phone  jersey | bus  commuter  rail  transport  transit  terminal  passenger  metro  stop  service  ferry  train  transportation  operate  route  station  freight  connect  rapid  line |

HOSPITAL

|  |  |  |
| --- | --- | --- |
| TYPE 1 | TYPE 2 | TYPE 3 |
|  |  |  |
| hospital  clinic  care  patient  medical  nurse  ward  physician  surgeon  sick  profession  elderly  dental  psychiatric  nursing  specialist  doctor  residence  college  nh | hospital  clinic  library  kindergarten  jail  prison  headquarters  residence  convent  school  priory  college  factory  campus  zoo  council  paris  farm  camp  park | hospital  care  clinic  medical  psychiatric  nurse  patient  nursing  facility  health  physician  specialized  treatment  illness  rehabilitation  dr  bed  center  medicine  doctor |

HOTEL

|  |  |  |
| --- | --- | --- |
| TYPE 1 | TYPE 2 | TYPE 3 |
|  |  |  |
| hotel  restaurant  resort  plaza  apartment  cafe  inn  bar  casino  luxury  nightclub  supermarket  chain  pub  retail  store  shop  brand  dining  mall | hotel  casino  restaurant  inn  mosque  resort  store  castle  cabin  supermarket  factory  synagogue  stadium  shop  palace  dormitory  estate  cafe  mall  structure | hotel  restaurant  accommodation  room  chain  inn  dining  resort  purchase  guest  nightclub  stay  luxury  overnight  tourist  plaza  facility  lobby  casino  bedroom |

GUN

|  |  |  |
| --- | --- | --- |
| TYPE 1 | TYPE 2 | TYPE 3 |
|  |  |  |
| gun  artillery  cannon  mortar  pistol  fire  tank  arm  turret  rifle  weapon  machine  ammunition  battery  barrel  bullet  enemy  heavy  shot  armament | gun  weapon  pistol  mortar  cannon  knife  rifle  artillery  bomber  sword  spear  rocket  ammunition  missile  tank  tube  firing  bullet  engine  shell | gun  cannon  ammunition  armament  turret  mortar  artillery  fire  weapon  machine  battery  rifle  shot  pistol  sniper  firing  bullet  tank  enemy  grenade |

BOMB

|  |  |  |
| --- | --- | --- |
| TYPE 1 | TYPE 2 | TYPE 3 |
|  |  |  |
| bomb  explosion  explosive  enemy  bombing  luftwaffe  torpedo  destroy  shell  weapon  submarine  explode  accidentally  blast  target  crash  massive  terrorist  disposal  attack | bomb  torpedo  bombing  explosion  earthquake  shell  bullet  missile  tornado  bombardment  bomber  fire  air  device  eruption  fascist  charge  sink  tactical  gas | bomb  bombing  raid  injure  explosion  luftwaffe  explode  suicide  bomber  explosive  blast  kill  destroy  target  drop  severely  sabotage  airfield  fighter  enemy |

HORSE

|  |  |  |
| --- | --- | --- |
| TYPE 1 | TYPE 2 | TYPE 3 |
|  |  |  |
| horse  race  racing  motorcycle  jockey  breed  regiment  thoroughbred  bicycle  cyclist  cavalry  brigade  bike  artillery  rider  rid  battalion  infantry  endurance  goat | horse  motorcycle  bull  bike  thoroughbred  car  bicycle  infantry  motor  dog  cat  elephant  person  volunteer  auto  man  helmet  cavalry  colt  driver | horse  jockey  rid  racing  rider  ride  bike  5th  regiment  handicap  brigade  cavalry  artillery  race  thoroughbred  hunt  breeder  infantry  breed  battalion |

FOX

|  |  |  |
| --- | --- | --- |
| TYPE 1 | TYPE 2 | TYPE 3 |
|  |  |  |
| fox  nbc  cbs  programming  abc  network  news  broadcast  cbc  espn  broadcasting  pb  cnn  channel  tv  affiliate  show  radio  affiliation  programme | fox  abc  cbc  nbc  cbs  cable  itv  bbc  satellite  paramount  tv  pb  television  espn  radio  sky  disney  shaw  sony  mtv | fox  nbc  cbs  abc  affiliate  programming  network  channel  espn  news  broadcast  affiliation  sitcom  tv  television  broadcasting  televise  cnn  cbc  broadcaster |

TABLE

|  |  |  |
| --- | --- | --- |
| TYPE 1 | TYPE 2 | TYPE 3 |
|  |  |  |
| table  bottom  row  skiing  tournament  wimbledon  pool  following  tennis  top  volleyball  comparison  column  amateur  summarize  pavilion  player  content  second  finish | table  column  season  content  tower  system  category  list  watchlist  diagram  infobox  bracket  poll  page  ranking  register  map  count  image  userpage | table  row  column  bottom  heading  following  tennis  list  below  redundant  third  actual  summarize  volleyball  wimbledon  second  align  fixture  contain  tournament |

BOWL

|  |  |  |
| --- | --- | --- |
| TYPE 1 | TYPE 2 | TYPE 3 |
|  |  |  |
| bowl  bowler  batsman  occasional  wicket  pace  super  bat  consecutive  league  over  inning  pro  quiz  bowling  cricketer  ring  inaugural  win  playoff | bowl  super  wrestling  playoff  all-ireland  league  ncaa  wwe  soccer  all-star  golf  parade  junior  juice  afl  cup  boxing  softball  baseball  olympic | bowl  steelers  nfl  super  raider  over  bronco  rose  cowboy  football  patriot  consecutive  inning  bat  jacksonville  pro  wicket  bowling  bowler  colt |

GUITAR

|  |  |  |
| --- | --- | --- |
| TYPE 1 | TYPE 2 | TYPE 3 |
|  |  |  |
| guitar  acoustic  bass  instrument  drum  vocal  percussion  keyboard  cello  piano  saxophone  string  rhythm  trio  violin  solo  guitarist  trumpet  backing  ensemble | guitar  bass  drum  piano  keyboard  flute  cello  saxophone  violin  vocal  viola  instrument  trumpet  percussion  horn  guitarist  organ  intro  solo  repertoire | guitar  bass  drum  acoustic  keyboard  percussion  instrument  vocal  rhythm  backing  line-up  lineup  piano  flute  guitarist  string  saxophone  tim  solo  band |

PIANO

|  |  |  |
| --- | --- | --- |
| TYPE 1 | TYPE 2 | TYPE 3 |
|  |  |  |
| Piano + +  Violin + -  Cello + -  Op - +  Viola + -  Concerto - +  Sonata - +  Flute + -  String - +  Bass + -  Trumpet + -  Orchestra - +  Guitar + -  Quartet - +  Lesson - +  Horn - +  Instrument + +  Instrumental - +  Acoustic - +  Ensemble - - | Piano + +  Guitar + -  Violin + -  Bass + -  Drum + -  Keyboard - +  Cello + -  Flute + -  Percussion + -  Saxophone + -  Instrument + +  Viola + -  Vocal - +  Trumpet + -  organ + +  horn \_ +  mathematics - -  composition - +  concerto - +  solo - + | Piano + +  Violin + -  Cello + -  Sonata - +  Op - +  Viola + -  flute + -  concerto - +  instrument + +  guitar + -  string - +  keyboard - +  percussion + -  bass + -  vocal - +  acoustic - +  drum + -  trio - +  quartet - +  solo - + |

MAP = 0.813

MAP = 0.542