Social Media Data Representation:

Overview: To enable the web application to parse the social media public reviews into the application database global schema, an interpretation of the representation of the public review data is required. There are two examples shown to demonstrate how to map the json responses to the attributes in the database.

Data Representation: Data entry is required to indicate how the response data are to be represented in the database. Response data will not be stored for any attribute which does not have an equivalent representation.

Example 1: In this example of http request response from Google place API search (https://developers.google.com/places/documentation/details#PlaceDetailsResponses). From this Google place search example, Table-1 (Database – Public posting data relationship) shows how the data element equivalent in the database.

Place Details Responses From https://developers.google.com/places/documentation/details#PlaceDetailsResponses

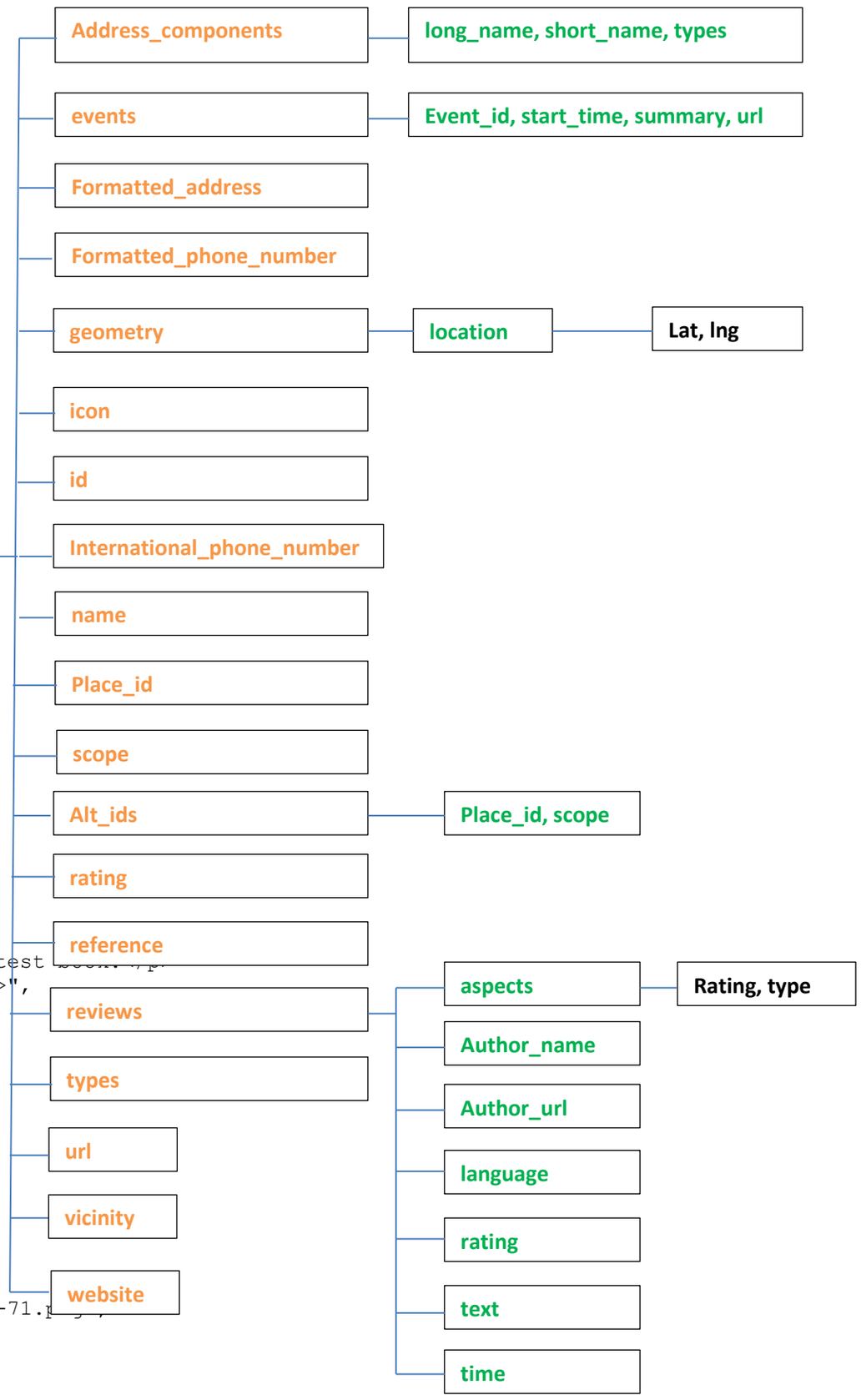
"Place Details responses are returned in the format indicated by the `output` flag within the request's URL path."[1]

There are 3 top level root nodes: html_attributions, result, and status. We are interested in the "result" node. The "result" node is a parent node to other nodes, and can be represented by the graph on the left hand side.


```
{
   "html_attributions" : [],
   "result" : {
      "address_components" : [
         {  "long_name" : "48",
            "short_name" : "48",
            "types" : [ "street_number" ]
         },
         {
            "long_name" : "Pirrama Road",
            "short_name" : "Pirrama Road",
            "types" : [ "route" ]
      },
      {
         "long_name" : "Pyrmont",
         "short_name" : "Pyrmont",
         "types" : [ "locality", "political" ]
      },
      {
         "long_name" : "NSW",
         "short_name" : "NSW",
         "types" : [ "administrative_area_level_1", "political" ]
      },
      {
         "long_name" : "AU",
         "short_name" : "AU",
         "types" : [ "country", "political" ]
      },
      {
         "long_name" : "2009",
         "short_name" : "2009",
         "types" : [ "postal_code" ]
      }
   ],
   "events" : [
     {
       "event_id" : "9lJ_jK1GfhX",
       "start_time" : 1293865200,
       "summary" : "<p>A visit from author John Doe, who will read from his latest book.</p>
                    <p>A limited number of signed copies will be available.</p>",
       "url" : "http://www.example.com/john_doe_visit.html"
     }
   ],
   "formatted_address" : "48 Pirrama Road, Pyrmont NSW, Australia",

   "formatted_phone_number" : "    (02) 9374 4000",
   "geometry" : {
      "location" : {
        "lat" : -33.8669710,
        "lng" : 151.1958750
      }
   },
      "icon" : "http://maps.gstatic.com/mapfiles/place_api/icons/generic_business-71.png",
      "id" : "4f89212bf76dde31f092cfc14d7506555d85b5c7",

      "international_phone_number" : "    +61 2 9374 4000",
      "name" : "Google Sydney",
      "place_id" : "ChIJN1t_tDeuEmsRUsoyG83frY4",
      "scope" : "GOOGLE",
      "alt_ids" : [
         {
            "place_id" : "D9iJyWEHuEmuEmsRm9hTkapTCrk",
            "scope" : "APP"
         }
      ],
      "rating" : 4.70,
      "reference" : "CnRsAAAA98C4wD-VFvzGq-
KHVEFhlHuy1TD1W6UYZw7KjuvfVsKMRZkbCVBVDxXFOOCM108n9PuJMJxeAxix3WB6B16c1p2bY1ZQyOrcu1d9247xQhUmPgYjN37JMo5QBsWipTsnoIZA9yAzA-
0pnxFM6yAcDhIQbU0z05f3xD3m9NQnhEDjvBoUw-BdcocVpXzKFcnMXUpf-nkyF1w",
      "reviews" : [
         {
            "aspects" : [
               {
                  "rating" : 3,
                  "type" : "quality"
               }
            ],
            "author_name" : "Simon Bengtsson",
            "author_url" : "https://plus.google.com/104675092887960962573",
            "language" : "en",
            "rating" : 5,
            "text" : "Just went inside to have a look at Google. Amazing.",
```

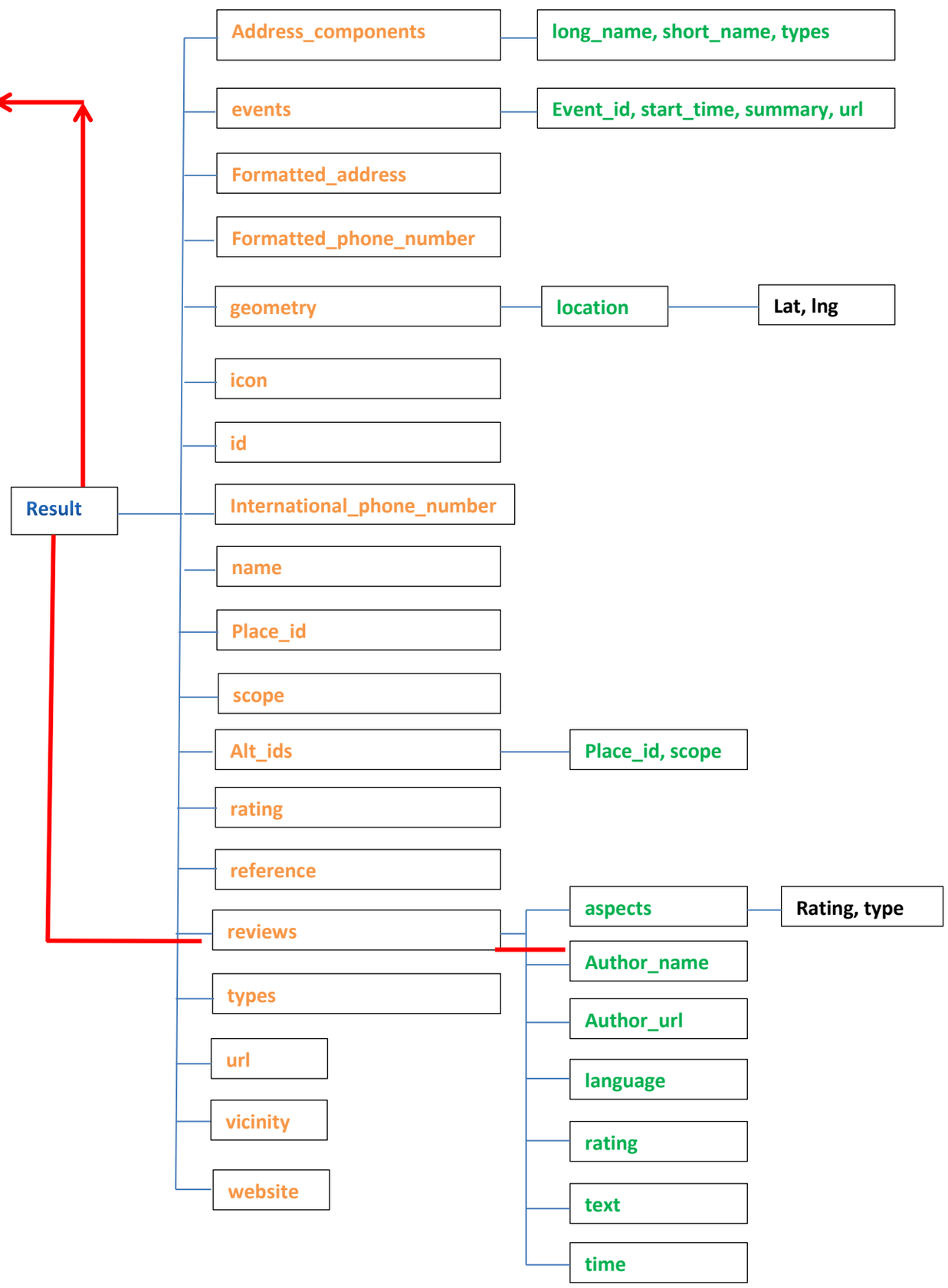



```
            "time" : 1338440552869
         },
         {
           "aspects" : [
              {
                 "rating" : 3,
                 "type" : "quality"
              }
            ],
            "author_name" : "Felix Rauch Valenti",
            "author_url" : "https://plus.google.com/103291556674373289857",
            "language" : "en",
            "rating" : 5,
            "text" : "Best place to work :-)",
            "time" : 1338411244325
         },
         {
           "aspects" : [
              {
                 "rating" : 3,
                 "type" : "quality"
              }
            ],
            "author_name" : "Chris",
            "language" : "en",
            "rating" : 5,
            "text" : "Great place to work, always lots of free food!",
            "time" : 1330467089039
         }
      ],
      "types" : [ "establishment" ],
      "url" : "http://maps.google.com/maps/place?cid=10281119596374313554",
      "vicinity" : "48 Pirrama Road, Pyrmont",
      "website" : "http://www.google.com.au/"
   },
   "status" : "OK"
}
```

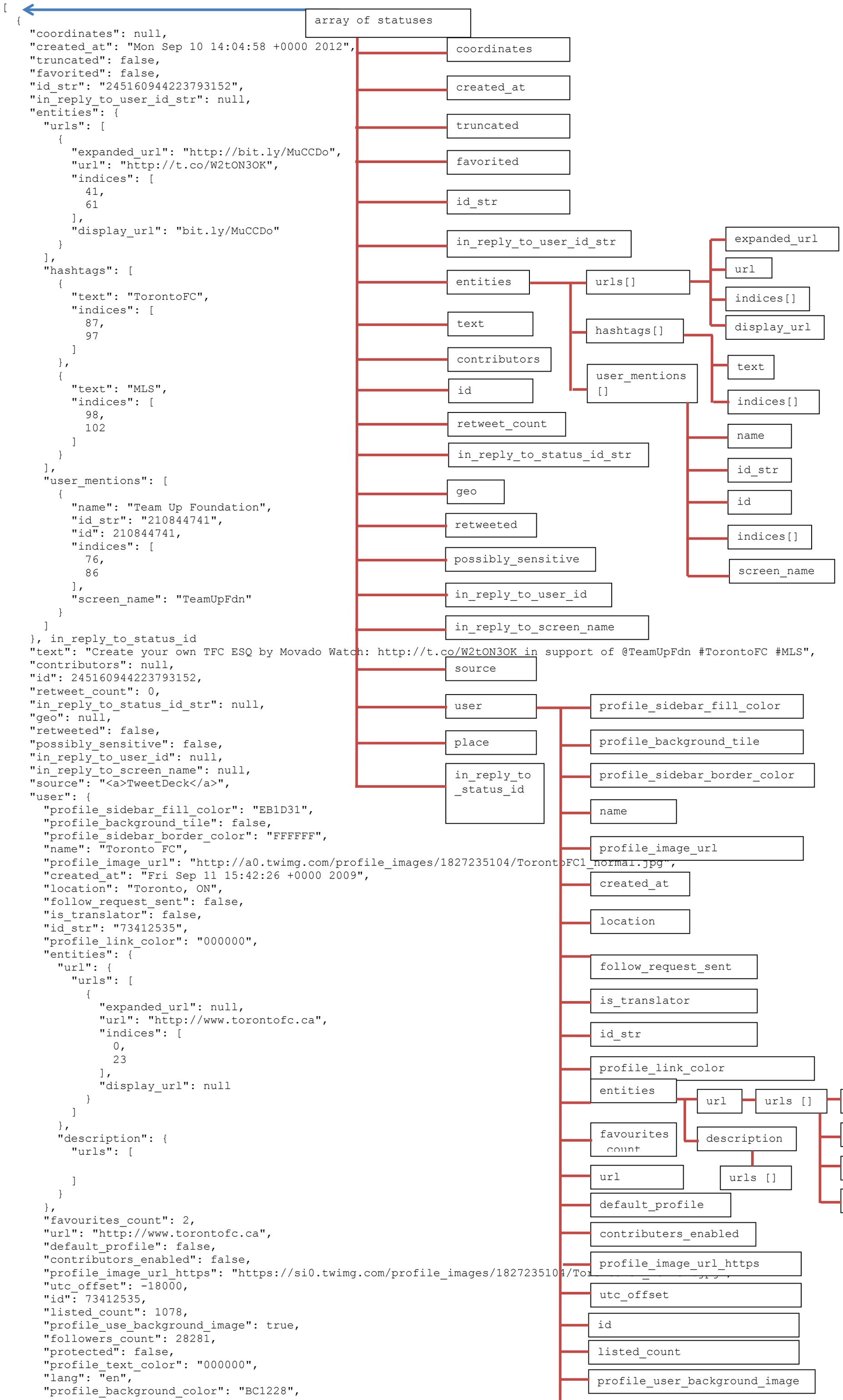

To integrate to the application database attributes, each relevant attribute element is mapped from the hierarchy of the nodes from the graph. To denote the hierarchy of the relationship, parent node precedes the child node. Each parent-child pair is separated by a dot(“.”). See example 1 (Table 1) and example 2 (Table 2) below.

Database attributes	Social media data element equivalent representation
Posting Commentor ID	
Posting Commentor Name	result.reviews.author_name
Commentor TimeZone	
Posting TimeZone	
Commentor Language	result.reviews.language
Total Posting Reviews	
Overall Rating	result.rating
Rating By Commentor	result.reviews.rating
Review Comment	result.reviews.text
Review posted at:	result.reviews.time
Commentor Location	

Table-1 Database attributes – Google place posting data mapping



Example 2: of responses and the mapping: from Twitter: https://dev.twitter.com/rest/reference/get/lists/statuses which returns an array of statuses




```
[
  {
    "coordinates": null,
    "created_at": "Mon Sep 10 14:04:58 +0000 2012",
    "truncated": false,
    "favorited": false,
    "id_str": "245160944223793152",
    "in_reply_to_user_id_str": null,
    "entities": {
      "urls": [
        {
          "expanded_url": "http://bit.ly/MuCCDo",
          "url": "http://t.co/W2tON3OK",
          "indices": [
            41,
            61
          ],
          "display_url": "bit.ly/MuCCDo"
        }
      ],
      "hashtags": [
        {
          "text": "TorontoFC",
          "indices": [
            87,
            97
          ]
        },
        {
          "text": "MLS",
          "indices": [
            98,
            102
          ]
        }
      ],
      "user_mentions": [
        {
          "name": "Team Up Foundation",
          "id_str": "210844741",
          "id": 210844741,
          "indices": [
            76,
            86
          ],
          "screen_name": "TeamUpFdn"
        }
      ]
    }, in_reply_to_status_id
    "text": "Create your own TFC ESQ by Movado Watch: http://t.co/W2tON3OK in support of @TeamUpFdn #TorontoFC #MLS",
    "contributors": null,
    "id": 245160944223793152,
    "retweet_count": 0,
    "in_reply_to_status_id_str": null,
    "geo": null,
    "retweeted": false,
    "possibly_sensitive": false,
    "in_reply_to_user_id": null,
    "in_reply_to_screen_name": null,
    "source": "<a>TweetDeck</a>",
    "user": {
      "profile_sidebar_fill_color": "EB1D31",
      "profile_background_tile": false,
      "profile_sidebar_border_color": "FFFFFF",
      "name": "Toronto FC",
      "profile_image_url": "http://a0.twimg.com/profile_images/1827235104/TorontoFC1_normal.jpg",
      "created_at": "Fri Sep 11 15:42:26 +0000 2009",
      "location": "Toronto, ON",
      "follow_request_sent": false,
      "is_translator": false,
      "id_str": "73412535",
      "profile_link_color": "000000",
      "entities": {
        "url": {
          "urls": [
            {
              "expanded_url": null,
              "url": "http://www.torontofc.ca",
              "indices": [
                0,
                23
              ],
              "display_url": null
            }
          ]
        },
        "description": {
          "urls": [

          ]
        }
      },
      "favourites_count": 2,
      "url": "http://www.torontofc.ca",
      "default_profile": false,
      "contributors_enabled": false,
      "profile_image_url_https": "https://si0.twimg.com/profile_images/1827235104/Tor
      "utc_offset": -18000,
      "id": 73412535,
      "listed_count": 1078,
      "profile_use_background_image": true,
      "followers_count": 28281,
      "protected": false,
      "profile_text_color": "000000",
      "lang": "en",
      "profile_background_color": "BC1228",
```

```
      "verified": true,
      "time_zone": "Eastern Time (US & Canada)",
      "profile_background_image_url_https": "https://si0.twimg.com/profile_backgroun                                    r8l22qlp.jpeg",
      "notifications": false,
      "description": "Official Toronto FC Twitter by @AsifinToronto & @JonSinden.  Fol                                    s, links, pics & videos. Join
us during matches for #TFClive",
      "geo_enabled": false,
      "default_profile_image": false,
      "friends_count": 13947,
      "profile_background_image_url": "http://a0.twimg.com/profile_background_images/                                    .jpeg",
      "statuses_count": 10774,
      "screen_name": "torontofc",
      "following": true,
      "show_all_inline_media": false
    },
    "place": null,
    "in_reply_to_status_id": null
  }
]
```


- followers_count
- protected
- profile_text_color
- lang
- profile_background_color
- verified
- time_zone
- profile_background_image_url_https
- notifications
- description
- geo_enabled
- default_profile_image
- friends_count
- profile_background_image_url
- statuses_count
- screen_name
- following
- show_all_inline_media

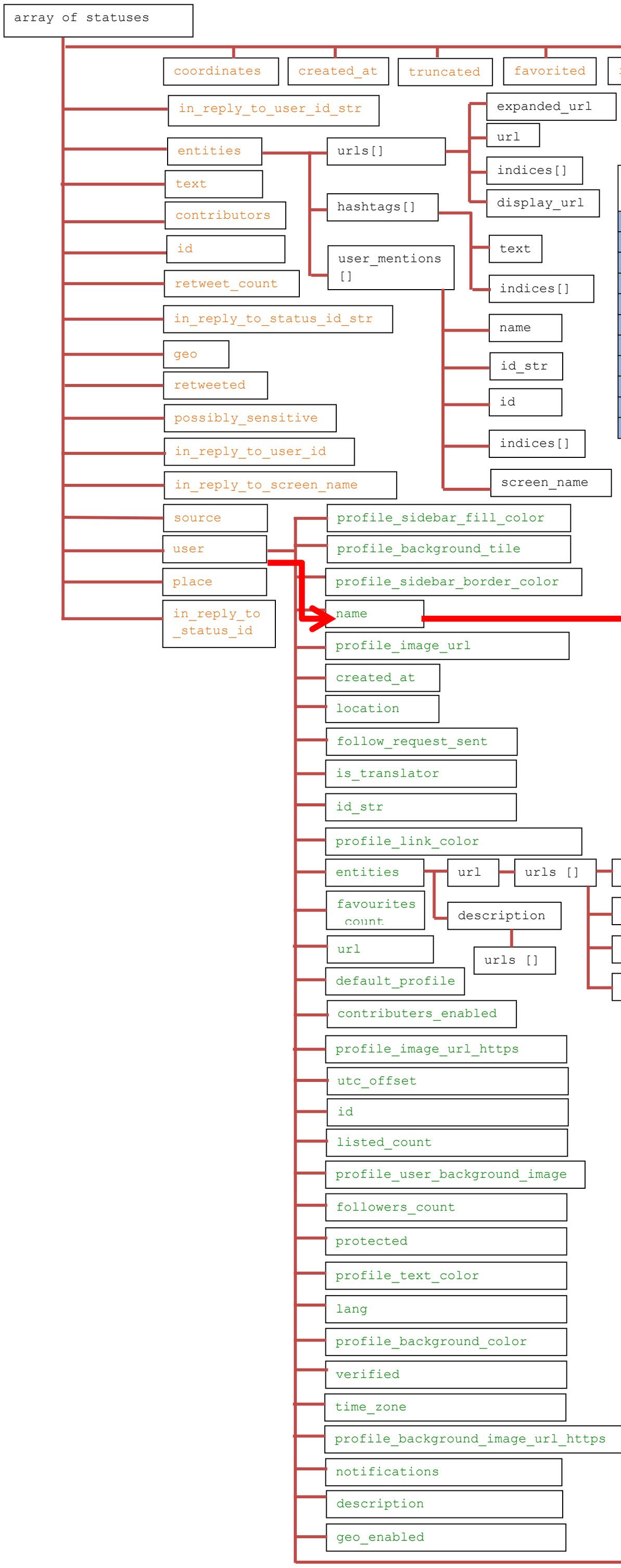


Table 2. Database attributes –Twitter response data mapping

Database attributes	Social media data element equivalent representation
Posting Commentor ID	user.screen_name
Posting Commentor Name	user.name
Commentor TimeZone	user.time_zone
Posting TimeZone	
Commentor Language	user.lang
Total Posting Reviews	user.statuses_count
Overall Rating	
Rating By Commentor	
Review Comment	text
Review posted at:	Created_at
Commentor Location	user.location