

# THE ADDED VALUE OF NETWORK SCIENCE IN UNDERSTANDING RADICALISATION: *WHAT WE SEE*

This paper focuses on what can be seen by applying network theory and technology to empirical evidence of cases of violent radicalisation in Europe

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# THE ADDED VALUE OF NETWORK SCIENCE IN UNDERSTANDING RADICALISATION: WHAT WE SEE

## INTRODUCTION

The objective of the project SAFIRE is to improve the understanding of the process of radicalisation, and to use this knowledge to analyse interventions to prevent, halt or reverse the process of radicalisation in Europe. This paper focuses on some findings of the SAFIRE modelling study which is based on an extensive literature review from several disciplinary perspectives and aims to generate insights in the process of radicalisation. For more information on the modelling techniques used, the reader is referred to the focus paper *The added value of network science in understanding radicalisation: How to look*.

# THE APPROACH

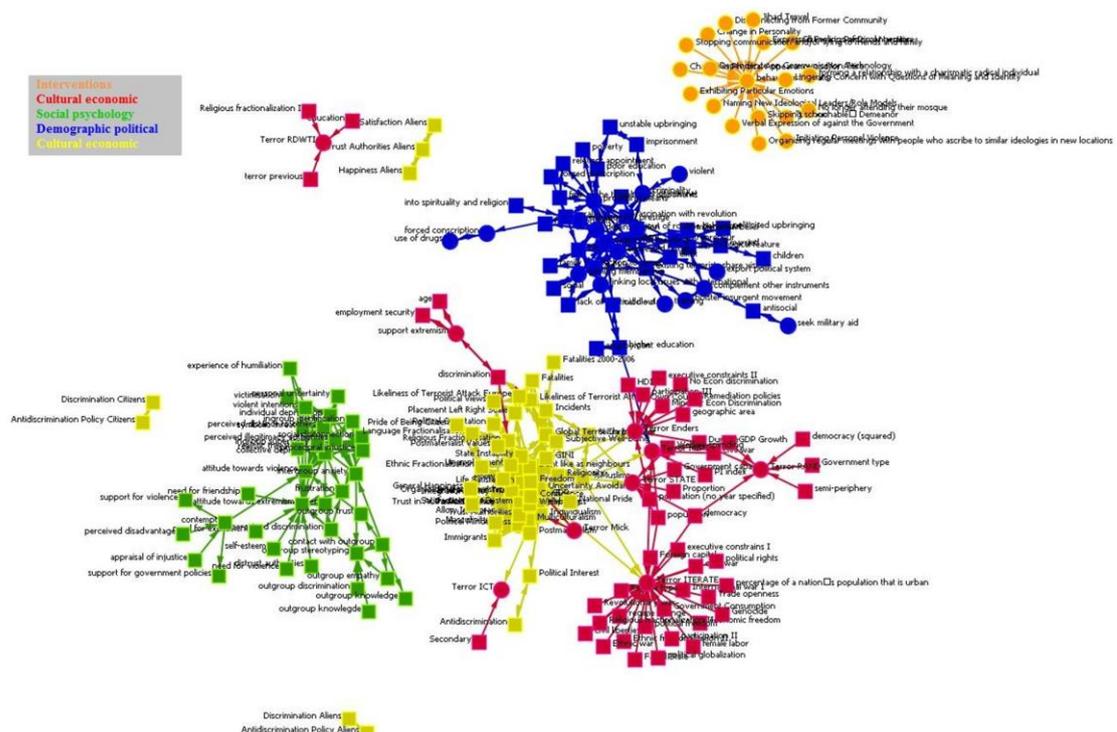
## IN GENERAL

In this focus paper we present and discuss key sample visualisations and analyses derived from the database of factors and their relationships with respect to radicalisation leading to violence. Because these representations and analyses are interactively made in network analysis/representation software and reflect specific queries, we limit ourselves to some key visualisations and the related analyses. In general the analysis process is an interactive process based on drilling down to those sets of factors that comply with the problem stated.

## THE DATA

The literature review undertaken in the SAFIRE project generated 220 identified radicalisation factors and more than 900 relationships between these factors, which were coded in a systematic manner and incorporated in a database. This database can be appended by additional relationships.

There are several general features of all visualisations. First, for purposes of clarity, nodes (factors) without any link (relationship) to another node were omitted from the visualizations. Second, many of the links that were found are correlational (not causal). These are represented either as arrows pointing two ways, or by two unidirectional arrows. Finally, one must remember that the data we use in these analyses and visualisations are actually factors and relationships we have extracted from the actual cases the diverse literature sources offered.



Scientific approach to Finding Indicators of and Responses to Radicalisation



# RESULTS AND CONCLUSIONS

## OVERALL PICTURE

In **Error! Reference source not found.**, we see the total set of unique links. We have colour coded the links to reflect the disciplinary nature of the source information. Furthermore, squares represent behaviours, circles represent states. The location of the node within the network represents how many links this node has in relation to the other nodes in the network: the more nodes, the more central its location. For example, within the (green) social-psychological network 'out-group trust' has more relations with other factors than 'the experience of humiliation'.

Most striking is perhaps the lack of relations between the different fields of research. This has several causes. First, the level of analysis differs per discipline. Whereas in some disciplines behaviour refers to individual or small group behaviour, in other disciplines behaviour refers to behaviour on the national or country level (e.g., policies and laws). For example, 'discrimination' (in the demographic-political discipline) and 'anti-discrimination' (in the cultural-economic discipline) are not related in this visualisation. This means that we have not found references in the literature that relate discrimination in the political sense to anti-discrimination in the cultural sense.

Whereas it is likely that individuals who demonstrate more discrimination behaviour will demonstrate less anti-discrimination behaviour, the level of analysis (country level for the cultural-economic discipline, and individual level for the demographic-political discipline) makes such a conclusion more intricate. As similar concepts at different levels of analysis might have strikingly different meanings, one should be cautious to speculate about relations between variables: for now it remains an empirical question whether anti-discrimination on the national level leads to less discrimination on an individual level.

Another possible cause for the lack of relations between fields or disciplines is that these tend to have their own expert jargon. This implies that in fact more links between these disciplines could exist, but that the use of different words for one and the same concept prevents linking factors that are basically the same. Multidisciplinary approaches would benefit substantively if more effort were put into discussing the overlap in the wording of phenomena. One promising application of the present visualisations to radicalisation is their use in finding a common ground to discuss the wording of the same or related phenomena in different fields.

Within each field, different types of networks can be identified. Networks can take many forms: they can be predominantly related to one factor, or be extremely interrelated. In **Error! Reference source not found.** [The Overall View] the network of variables derived from the field of interventions (orange) is least developed. All factors are only related to one other factor: behaviour.

Although the inclusion of this factor renders minimal additional relational information, the variables mentioned, such as 'exhibiting particular emotions' and 'concern with questions of meaning and identity' are relevant in and of themselves, and effort were undertaken to link this factor to the other factors, for example through the use of the planned experiments on interventions within the SAFIRE project.

## FINDING DETERMINANTS OF SPECIFIC BEHAVIOURS

Figure 2 shows an example of a backwards influence representation, which is useful if we are interested in, for instance, what contributes to 'gaining membership' to radical groups. Reading the graph from right to left, the variables directly related to gaining membership (1st order) are given in the middle vertical line, and the variables indirectly related to gaining membership (2nd order) are given in the leftmost vertical line. Pink squares are behaviours and green squares are states.

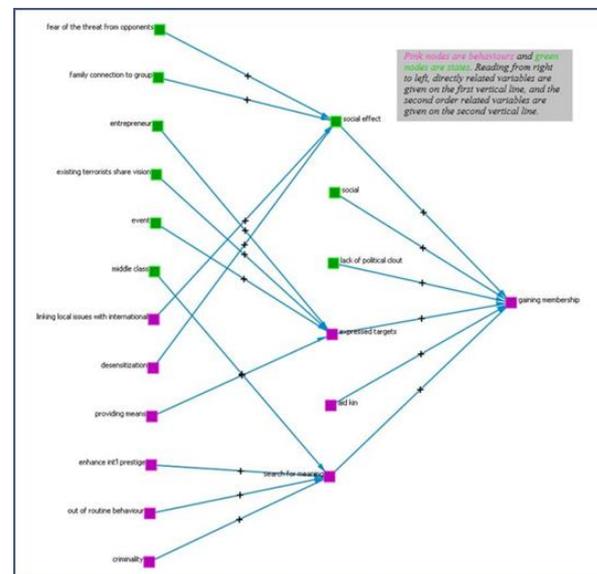


Figure 2 Backward Influence

This type of analysis makes two important things clear. First: you don't have to look at the whole picture to understand any particular factor. In most cases, it is possible to identify a limited, manageable set of relevant antecedents. This makes understanding radicalisation considerably easier.

Second, specific behaviours result from characteristics of the individual themselves on one hand, and environmental forces on the other. This type of analysis allows for identifying those determinants that contribute to a targeted behaviour and which can potentially be influenced. Finally, second or even third order antecedents can be represented, as they are in Figure 2, but we assume that first order antecedents have the most influence.

A backward influence analysis also allows for sensible hypothesis testing. Even though the literature may not explicitly report on a relationship between two 'neighbouring' factors does not necessarily mean that this relationship is non-existent. Network representations make not only visible where relationships have been found, but also suggest where these are potentially lacking. To quote the ecologist Eric Berlow<sup>1</sup> "to find solutions you often need to zoom out and appreciate the whole network to then zoom in on the node of interest and find simple solutions within one or two degrees removed from that node."

Many interconnected components influence the processes of radicalisation, and so the concept of being removed from radicalism (for example by intervention programmes) also cannot be strictly defined. The point we make is that the systematic inclusion of all findings, with respect to radicalisation, to a relational knowledge base will enhance sense making. This will allow for more precise and situation specific identification of potential determinants and thus more opportunities for effective intervention. We have demonstrated how this can be done: the technology is available. The next step will be to make this SAFIRE methodology accessible to the appropriate stakeholders.

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<sup>1</sup>

[http://www.ted.com/talks/eric\\_berlow\\_how\\_complexity\\_leads\\_to\\_simplicity.html](http://www.ted.com/talks/eric_berlow_how_complexity_leads_to_simplicity.html)