

DOI: 10.24193/OJMNE.2024.46.08

**Andreas THEOFILIS, PhD candidate**   
University of the Peloponnese, Greece  
a.theofilis@uop.gr

## INTEGRATION OR DIFFERENTIATION: A NEOFUNCTIONALIST ACCOUNT OF THE EU'S DEFENCE STRUCTURE USING FUZZY SETS

---

**ABSTRACT:** *The EU makes efforts to strengthen its capabilities in security and defence. This article sheds light on the trends of the defence element of the CSDP regarding integration or differentiation through an approach that embodies both qualitative and quantitative features. It is based on examining official EU documents from 1992 to 2020 using fuzzy sets to reveal if and how these documents reflect integration dynamics in discrete dimensions (political, procedural, economic, and military) that all together co-formulate the EU's defence complex. Advancing a neofunctional analysis, this article argues that there is a positive stance for cooperation in defence matters without bestowing new competencies to supranational entities, thus pointing to differentiation rooted in a dominant retrenching option, following Schmitter's elaborated version of the spillover effect. Nevertheless, cultivated and functional spillover signs are also found. These signs might push for full integration differently in each discrete dimension of the overall defence structure by generating non-negligible spillover effects.*

---

**KEYWORDS:** Neofunctionalism; EU defence integration; spillover; retrench.

### 1. Introduction

European integration spans almost seventy years, impacting and occasionally moulding various policy areas, including security and defense. Consequently, extensive research has been conducted on the EU's role in international affairs, its ability to operate as a security actor, and its defence structures. In this framework and given the modern turbulent international environment, research on integration dynamics of the CSDP, if any, sounds opportune and valuable for policy-makers and academics interested in the broader field of the EU's evolution.

Previously, a pervasive literature has examined the nature of the European Community, the ancestor of the EU. At first, Duchêne suggested that the European Community was grounding its international presence on civilian means (1973). That way, he introduced the idea of *civilian power*. Later, many scholars

subscribe to Manners' description of the EU as a *normative power* (2002) since the EU usually appears reluctant to disturb international order by using hard power and prefers to make efforts to maintain international normality using civilian means, even if such means are not always stripped out of any coercive feature (Goldthau and Sitter, p. 2015). Besides, one more view on the EU's international presence adds another feature to civilian and normative characterisations. According to that view, the EU has evolved as a risk-averse *small power* (Toje, 2014) that avoids exerting hard coercion.

Apart from work that examines the EU's nature in global politics, a great mass of literature researches the EU's functioning as a security actor and the related means at its disposal. For example, Rieker (2009, p. 712) concluded that the EU had 'limited but increasing resources and that it was primarily oriented towards civilian crisis management and conflict prevention activities. Riekeley (2016) mentioned that security and defence had been gradually placed at the European edifice's heart. Hoijtink and Muehlenhoff (2019) noted that the EU had started to develop military means. On the contrary, Keukeleire (2016) claimed that the EU could not be taken as a credible international security actor since it was militarily emasculated and did not assume the territorial defence of its Member States (MS). Similarly, Cladi (2022) argued that the EU is still far from autonomously projecting its influence internationally.

Be that as it may, the EU has created and implemented an extended spectrum of tools, mechanisms, and institutions to promote its MSs' cooperation in the defence sector and forge the Union's capabilities against contemporary security challenges and threats. For instance, in June 2016, the EU Global Strategy was presented, and a few months later, the European Commission presented the European Defence Action Plan. After a year, the Council established the PESCO, and in June 2018, the European Parliament and the Council proposed establishing the EDF. Last, in 2022, the EU issued its Strategic Compass.

Against this backdrop, scholars have noticed an increasing influence of the EU's supranational bodies on the decision-making process concerning the EU's defence sector (Riddervold, 2016; Rosén & Raube, 2018). Although this may be true, Strange (2015) suggested that the EU does not appear as a unitary actor in the international system as the relevant decision-making process remains primarily intergovernmental. In any case, it was just recently that the growing involvement of the Commission in the area of defence took the form of a 'paradigm shift' (Haroche, 2020, p. 1). Hence, research is needed to explore further the potential of the EU's defence structures and any likely integrative dynamics.

### 1.1 Main research question

All things considered, the development of the EU defence complex and, subsequently, its ability to act as a credible, unitary actor in security and defence can be understood by adapting an analogy drawn by Whitman, according to which 'the European Union is a house in which the foundations have been laid (the European Communities) and for which a roof has been raised by means of supports [CSFP and CSDP]' (1998, p. 4).

Still, the roof's shape has not been clarified. As Sweeney and Winn (2022) put it, the EU's roles in security and defence need elucidation.

This article aims to contribute to this elucidation, especially regarding defence and add to the literature on the CSDP through the lens of neofunctionalism by answering the question: *Is the EU's development of its defence construction resulting in defence integration or providing a structure for intergovernmental cooperation based on differentiation?*

The article offers insights into the development trends observed in the EU defence complex by elaborating on the institutional framework that constitutes it through the lens of neofunctionalism. This way, it goes beyond conceptual incisions, such as civilian versus normative power and soft versus hard means, to identify whether integration dynamics exist. With this intention, it proposes a novel approach that adopts the logic of fuzzy sets by distinguishing four aspects that co-formulate the overall defence concept: the political, procedural, economic and military dimensions of the EU's defence construction.

## **2. Theoretical and Methodological Foundations**

Like other research fields, integration studies have resorted to relevant theories to explain regional cooperation. Different integration theories have been used to answer different questions over time. Some theories give space to what should be the future of regional cooperation by embodying normative connotations; other theories are pertinent to answer why states initially decide to bestow part of their competencies on supranational entities entering into a regional cooperation structure; other theories are oriented to answer about the consequences and the dynamics of integration processes; others elucidate the nature of a regional governance formation through comparisons.

Neofunctionalism is often considered the first integration theory that does not emanate from state-oriented theories but is tailor-made to integration processes (Saurugger, 2014). Neofunctionalism subscribes to the pluralistic paradigm in which "the focus was on groups and bargaining" (Marsh & Stoker, 2002, p. 15). Thereby, from a neofunctional point of view, European integration has eventuated by diverse and multiple actors trying to promote and secure their interests through international and/or supranational entities, given that "pluralism of groups, values and institutions is the hallmark of western European political life" (Haas, 2004: 4). Neofunctionalism is grounded on two key concepts: spillover and transfer of loyalty. Spillover is the process through which integration in a specific policy area is spread to other areas. Initially, the spillover was considered an automated process. However, this article subscribes to Schmitter's (1970) version of neofunctionalism, according to which the spillover is not automated, but when an actor, a state,

participating in a regional entity deals with an issue beyond its zone of indifference, such as defence, the following options are available:

*Table 1: Schmitter's spillover concept*

<b>Option</b>	<b>Interpretation</b>
<b>Spillover</b>	Accept integration in the new issue area.
<b>Spill-around</b>	Accept integration in the new issue area without bestowing new competencies to supranational entities.
<b>Build-up</b>	Accept increasing competencies bestowed to supranational entities while opposing extending integration in the new issue area.
<b>Retrench</b>	Increase the common concept about the issue at stake without accepting supranational institutions to get involved.
<b>Muddle-about</b>	Accept a debate on a broader variety of issues among regional bureaucrats but decrease their capacity to materialise the outcome of this debate.
<b>Spill-back</b>	Freeze the process.
<b>Encapsulate</b>	Accept modifications in its participation in the regional entity, providing that these modifications belong to its zone of indifference.

Moreover, Tranholm-Mikkelsen (1991) identified three spillover forms: *functional*, *political* and *cultivated*. According to the first, further integrative actions can only achieve a given goal. The second form, political, refers to how national representatives realise that some problems could be better handled at the supranational level. Consequently, if national representatives realise that supranational institutions can better achieve some outcomes, they tend to support these institutions as such. Risse characterised this process as an 'ideational spillover' (2005, p. 294). Hence, political spillover can be seen as an alternative to the ideational spillover notion and vice versa. The third form, cultivated spillover, describes how supranational institutions become agents of integration, seeking to expand their powers and secure their existence.

The second essential concept of neofunctionalism, transfer of loyalty, refers to the fact that competing groups and individuals participating in a political community manage to preserve the coherence of their community despite their discrete, if not divergent, interests. That is because they attach importance to a common *foci of loyalty* placed beyond national states, namely central (European) entities. It should be pointed out that the transfer of loyalty does not lead to a change of identity; national identities can co-exist with European ones. Subsequently, the former may become a substantial element of the latter.

These features make neofunctionalism suitable for researching the integration dynamics in defence, if any, even if other theories, such as intergovernmentalism, can also be used to shed light from a different point of view. Besides, even if neofunctionalism is generally considered a sound integration theory, it is rarely used in defence-related research as state-oriented approaches often dominate this area. In this vein, this article aspires to contribute to using a neofunctional lens for defence matters, aiming to enlighten the development of the EU defence edifice from a different angle.

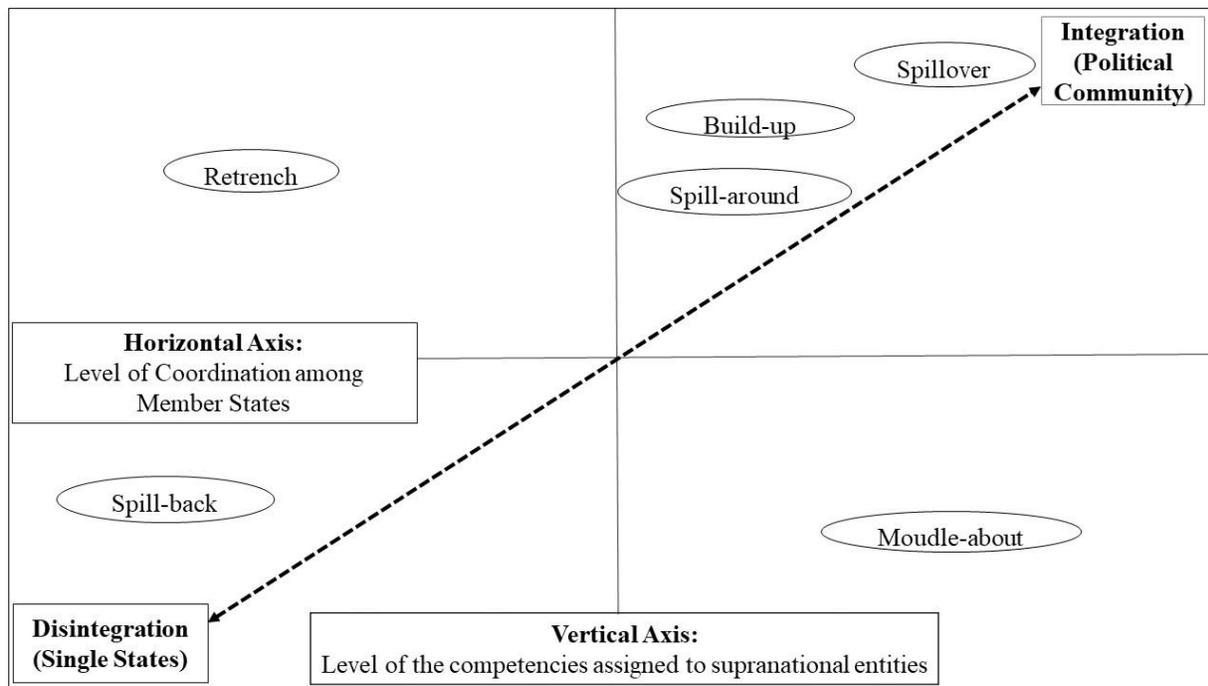
Neofunctionalism is coupled with fuzzy sets at the methodological level to study how different dimensions encompassed in the overall EU defence structure are reflected in relevant documents. This way, the question of whether the current institutional framework carries spillover dynamics that push towards an integrated CSDP's defence aspect is researched.

Linberg's consideration of integration drove the clarification of what integration is. According to him (Linberg, 1963, p. 6 as cited in Niemann, 2006, p. 14), it is:

- a) The *process* whereby nations forgo the desire and ability to conduct foreign and domestic policies independently of each other, seeking instead to make *joint decisions or to delegate the decision-making process to new central organs and*
- b) the *process* whereby political actors in several distinct settings are *persuaded to shift their expectations and political activities to a new centre* [emphasis added].

Three connotations derive from this definition. First, integration is considered a process, not necessarily an end state. Second, this process can transfer competencies to central entities or not; what counts at the early stages of the process is the recognition of the need for common actions. Third, the realisation that a central body can better deal with delivering them shall occur at the later stages. Therefore, the third connotation shares similarities with the transfer of loyalty since it implies that European entities can better serve common interests.

In this framework, Schmitter's options are depicted in a two-dimensional space. The vertical axis describes the level of competencies assigned to supranational entities. The horizontal represents the scope of the efforts against an issue in terms of collaboration. Therefore, the scope may extend from integration to avoidance of any joint action. As is shown, the upper right quarter contains the closer options for shaping a political community. As far as defence is considered beyond the zone of indifference, the encapsulating option is left out.



*Figure 1: Adaptation of Schmitter's original (1970) figure*

## 2.1 Central Hypothesis

This article assumes that the overall defence complex consists of four discrete dimensions/aspects: the political, procedural, economic and military. These dimensions are reflected differently in the relevant EU documents and push the development of the EU's defence structure in unlike ways. For instance, the Global Strategy primarily introduces political directions, the EDF mainly provides a funding framework and involves the very supranational body of the EU –the Commission- while the PESCO offers a platform for intergovernmental collaboration.

In this framework, the central hypothesis of this article is that intense cooperation/coordination in one dimension may be spread to the rest due to the spillover effect. In such a case, integration in defence may occur if the transfer of loyalty, the other key concept of neofunctionalism, co-exists. Otherwise, the evolution of the EU's defence structure could continue to offer a platform for intergovernmental cooperation among MSs.

Following the central hypothesis, Table 1 presents the specified dimensions:

*Table 2: The four dimensions that co-formulate the overall defence concept*

Dimension	Definition
<b>Political</b>	It relates to security issues and reveals the strategic view of the EU for the defence sector.
<b>Economic</b>	It deals with financing military operations and funding the development of military capabilities.
<b>Organisational/ Procedural</b>	The dimension that: <ul style="list-style-type: none"> <li>• addresses the implementation of a defence-related policy,</li> <li>• establishes relevant structures, procedures and rules,</li> <li>• defines the means to be used towards achieving a defence policy goal,</li> <li>• entails harmonising relevant processes and standardising defence issues.</li> </ul>
<b>Military</b>	The dimension that affects the sheer military structure of the Union and its MSs by providing mechanisms for joint action, operational guidelines and/or establishing military operations. It directly relates to delivering military means for European or national defence planning, meaning the ‘preparations for the defence of a polity in the future’ (Gray, 2014, p. 4).

## 2.2 Methodology

The methodology is based on examining official European documents from 1992 to 2020. The corpus of the 95 examined documents is based primarily on the EU (2021) database, containing official documents relevant to any form of EU law. The work of Hill et al. (2000) concerning the EU defence, the University of Pittsburgh (2011) collection, the list of Council conclusions (EU Council, 2021) and the research question guided the selection of the documents and supported filling the sample, following *relevant* or *purposive* sampling approach (see Krippendorff, 2004, p. 119).

The examined documents carry both *supranational* and *intergovernmental* loads. That is why the documents have been correspondingly assessed. Supranational loads are taken as indications that some issues can be better handled if competencies are being bestowed on supranational structures. Even when supranational structures are not directly established, supranational loads reveal trends. For instance, the phrase “EU Strategic Autonomy” does not introduce specific supranational provisions but carries supranational features because it considers the EU a unitary actor who seeks autonomy. On the other hand, intergovernmental loads are perceived as pointing to MSs’ prevalence or vital role in a subject matter, even if it affects the EU as a

whole.

Fuzzy logic, a generalisation of classical logic that provides mechanisms for approximate reasoning, is suited at the methodological level to adequately depict the existing EU defence structure. It consists of implementing fuzzy sets introduced by Lotfi Zadeh (1965). Fuzzy sets generalise the classical sets, shifting from the dualistic logic of white and black to the more general sense of shades of grey through *degrees of participation*. This article treats the defined dimensions and the identified loads as fuzzy sets in which the examined documents participate to some degree.

Each document's participation in the sets was evaluated using qualitative content analysis under the *measurement view*. It takes *x graded membership* of an element *X* in a set *A* to represent this relationship and its meaningfulness regarding given criteria (Jacoby, 1991, pp. 5-13). In more detail, assigning membership was a five-step process:

- i. The definitions of the four dimensions and the two loads composed the inference points of the system, in other words, the criteria for belonging to a set.
- ii. The content analysis divided each document into phrases and classified them into these sets.
- iii. The total count of the classified sentences of each document was measured.
- iv. The sub-total count of classified sentences for each set was calculated<sup>1</sup>.
- v. The ratio of the sub-total to the total count formed the corresponding membership values<sup>2</sup> for a document in each set<sup>3</sup>.

In a nutshell:

- Neofunctionalism was adopted to facilitate the delineation of potential spillover between the discrete dimensions that co-formulate the European defence status.
- Fuzzy sets were utilised for assessing how the integrative dynamics of the EU defence structure, if any, are illustrated in institutional arrangements and reflected in the examined documents;

The process allowed us to check whether Linberg's connotations apply to the EU defence complex and how Schmitter's options fit the case.

---

<sup>1</sup> Numbers were rounded off to the nearest second decimal place.

<sup>2</sup> In information retrieval, this calculation stands for the *term frequency (tf)*, meaning how often a term is found in a document. Identifying whether a term is important across a whole corpus of documents is often based on adopting the *tf\*idf* measurement. The abbreviation *idf* stands for the inverse document frequency, which measures if a term is common or rare across all the documents in a corpus (Tsikrika, 2009; Munot & S. Govilkar, 2014). *Idf* can be calculated as the logarithm of the number of documents in a corpus divided by the number of documents where a specific term appears.

<sup>3</sup> The list of the examined documents and their graded memberships are available at:  
<https://doi.org/10.6084/m9.figshare.22256758.v2>

### 3. Data Analysis and Findings

Data carry significant aspects of any matter but must be analysed to reveal these aspects. With this intention, data are often coded. Given the methodological approach, twelve sets were coded; the first four consisted of the specified *dimensions* (political, economic, procedural, and military). Eight subsets of the prior were composed of the corresponding *loads*. This coding is presented below:

Table 3: Sets coding

	Dimension	Political	Economic	Procedural	Military
		Pol_dim	Eco_dim	Pro_dim	Mil_dim
Load	Supranational	Pol_s	Eco_s	Pro_s	Mil_s
	Intergovernmental	Pol_i	Eco_i	Pro_i	Mil_i

Against this background, the sections below focus on the key findings related to the research question and this article’s aims. Precisely, the following inquiries are examined to subsequently answer if the EU’s development of its defence construction points to defence integration:

- a. Has the EU recognised the need for joint actions in the defence realm?
- b. Do supranational features exist in developing the EU defence structure?
- c. How does Schmitter’s approach fit into this article’s findings?
- d. Are integration prerequisites, i.e. spillover signs, identified in the examined documents?

#### 3.1 Need for joint actions

One meaningful comparison concerns the participation of the reviewed documents in each dimension set. The examined documents participate in these sets with their graded memberships. From this point of view, as Diagram 1 shows, the economic (Eco\_dim) and military (Mil\_dim) sets seem neglectable, whilst the political (Pol\_dim) and procedural (Pro\_dim) dimensions prevail. The political dimension comes first in the documents up to SL31<sup>1</sup>, approximately. Then, that trend was overturned. In this respect, the infancy of

---

<sup>1</sup> Documents were coded with bigrams SL and L followed by a number that denotes chronological order. SL stands for non-legally binding acts (such as recommendations, declarations and resolutions). L stands for legally binding acts (such as EU treaties, regulations, directives, decisions and implementing acts).

the CSDP differs from its later stages.

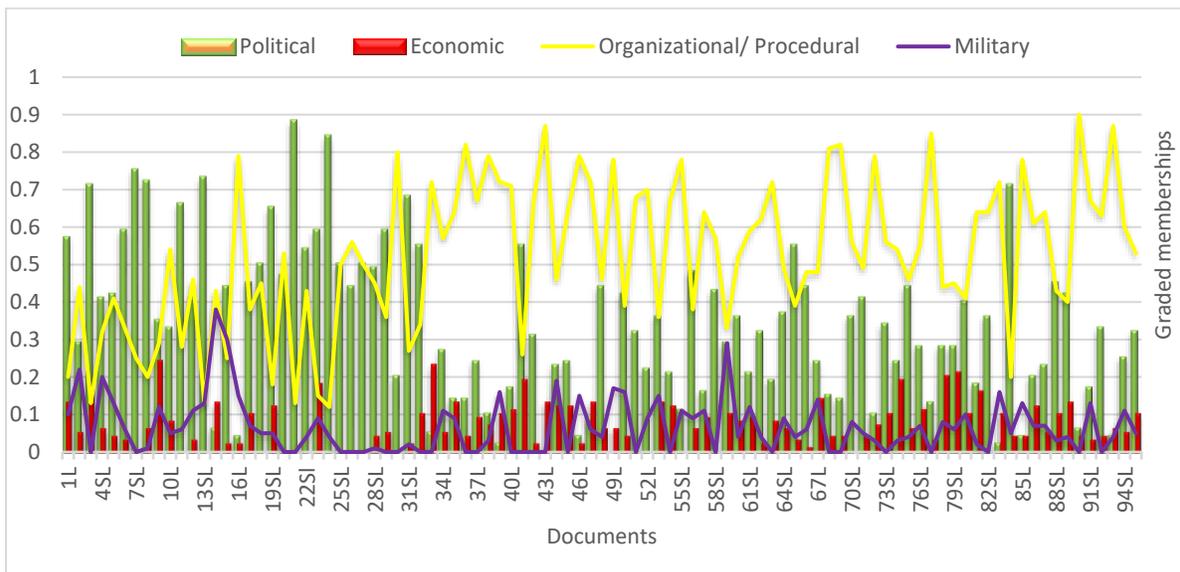


Diagram 1: The dimensions across the whole corpus of documents

According to Whitman, the creation of the ESDC constituted ‘an embryonic division of labour between the EU (..) and NATO’ (2004, p. 430). This argument is consistent with reality. The CSDP, introduced in the Treaty of Lisbon in 2009, is enhanced compared to its predecessor, the ESDC, regarding aspects falling in the political dimension defined hereof. For example, the creation of the EEAS reflects a shared view between the MSs about the need for the EU to act more coherently in its international presence. Also, the mutual assistance and solidarity clauses imply at least political intentions for solidarity between the MSs in dealing with external threats.

From a neofunctional perspective, the transition noticed in document SL31 implies that agreed political goals should be achieved by taking further action. In other words, when the MSs identified the need for defence cooperation, the door opened for action in setting up the way to achieve it, i.e. in the procedural dimension.

### 3.2 Supranational entities’ involvement.

Intending to shed light on the role of supranational bodies in the EU defence concept, the internal structure of the dimensions’ sets was examined, and two questions were posed. First, which load-set threshold allowed the political dimension to pass the baton to the procedural? Second, which dimension seems likely to succeed the procedural if or when the latter reaches that threshold?

Regarding the first question, clarifying when a document decisively carries a load was necessary. With this aim, proper thresholds were set to reveal the load’s subset to which a document *unquestionably* belongs. This way, fuzzy sets were transformed to crisp (for such transformation, see Smithson and Verkuilen, 2006;

Rihoux and Ragin, 2009).

As Rihoux and Ragin (2009) suggest, setting thresholds when conducting fuzzy qualitative comparative analysis is dynamic to fit the theoretical background and produce sound knowledge. Since SL31 is a cross-over point, two separate subsets of documents were identified and compared. The primary means of comparison were the *scalar and relative cardinalities*<sup>1</sup>. Let A be the Pol<sub>s</sub> subset for the documents L1 to SL31 and B for SL32 to SL95. For documents  $\in [L1, SL31]$ , it is  $|C|(Pol_s) = 10.69$ , where  $|C|(Pol_i) = 5.07$ . Moreover, as Diagram 2 suggests, the participation of documents in Pol<sub>s</sub> increased gradually and has maintained that level since then. When the ratio  $||C|| (Pol_s) / ||C|| Pol_i$  constantly became over 2, the door opened for another dimension to succeed. This observation allows for the induction of a rule regarding the threshold of the supranational vis-à-vis intergovernmental loads:

*Supranational loads shall constantly be approximately double the corresponding intergovernmental loads to allow dynamics in a given dimension to pass to the next dimension.*

This *double rule* denotes that if a dimension overcomes the threshold, it can pass spillover signals to another dimension. We can infer that if the four defined dimensions conform to the rule, the whole EU defence complex will send spillover signs. Then, if the transfer of loyalty, the other key aspect of neofunctionalism, is present, integration can be furthered through a spillover effect.

Returning to our examination, the procedural aspect became prominent when the political dimension adhered to the double rule. Although the political dimension appeared to shrink, supranational political loads continued to exert significant influence (the ratio  $Pol_s/Pol_I$  remained greater than one, as shown in Diagram 2). This influence denotes a continuous reminder of the recognised need for cooperative work on the EU defence project.

---

<sup>1</sup> Scalar cardinality  $|C|$  is defined by the summation of membership values of all elements in a set. Relative cardinality of a set, denoted as  $||C||$ , is the fraction of scalar cardinality to the total number of elements within the set (Smithson and Verkuilen, 2006, p. 37-41).

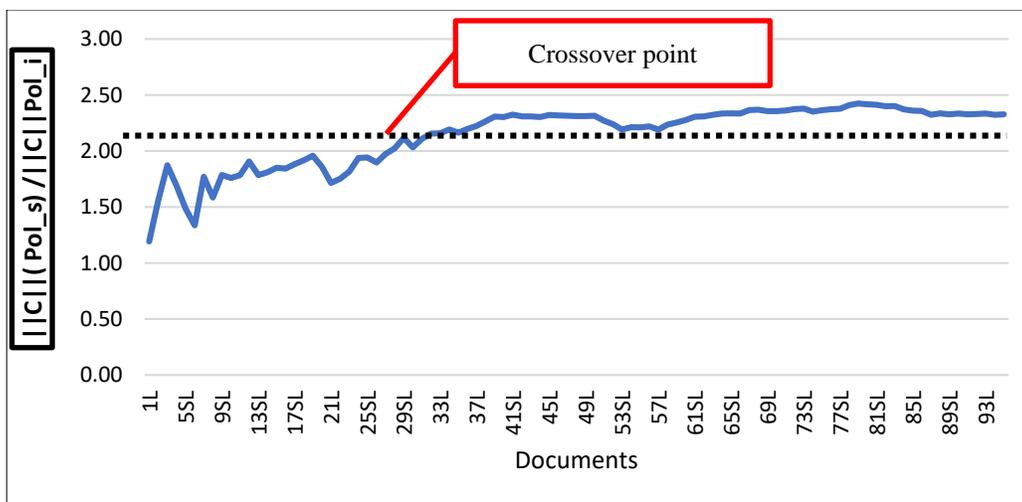


Diagram 2: *Pol\_s and Pol\_i relative cardinalities ratio*

The *double rule* states that a document *unquestionably* carries supranational features if the supranational load exceeds double its intergovernmental. Hence, for a document D having x degrees of participation in the supranational subset S and y degrees of participation in the intergovernmental subset I, the rule can be written:

$$\begin{aligned} &\text{If } x \geq 2 * y, \text{ THEN } D \in S && \{1\}, \\ &\text{Else } D \in I && \{2\}. \end{aligned}$$

The second question was which dimension may follow another if the latter gains the threshold. According to Diagram 1, the procedural area succeeded the political regarding graded memberships. From this point of view, it was the second dimension regarding scalar cardinality in the interval [L1, L31], as below:

$$|C|(Pol\_dim) > |C|(Pro\_dim) > |C|(Mil\_dim) > |C|(Eco\_dim)$$

Regarding the interval [SL32, SL95], it is:

$$|C|(Pro\_dim) > |C|(Pol\_dim) > |C|(Eco\_dim) > |C|(Mil\_dim)$$

In this vein, the more likely dimension to follow the procedural- if and when it gains appropriate dynamic- will be the economic one. Although the latter is third in terms of scalar cardinality, the second one, i.e. the political dimension, passed the bastion to the procedural dimension at the SL31 point. If the political dimension retook the first place, this would point to a setback. Then, agreed political goals would be subject to renegotiation, leading to their restatement, enhancement or abandonment. Of course, in later stages, the current status could come back.

In all events, the case of the EDF seems to validate the yet slightly emerging dynamic of the economic dimension. Haroche (2020) and Håkansson (2021) offer insightful views on how the Commission got involved in the broader defence sector, previously considered the safe fortress of intergovernmental structures

within the EU. The calculation of the average ratio of supranational to intergovernmental relative cardinalities of the economic aspects as 1.76 is high compared to the procedural and military dimensions and is attributed to the Commission's emerging involvement. Generally, it was found that the supranational loads have gradually gained a dense presence, primarily in the political dimension and, secondly, in the economic.

### 3.3 Options following Schmitter's approach: Integration or Differentiation

Combining the definitions of the four dimensions and the available MSs' options for an issue beyond their zone of indifference fits for elaborating on the potential of the EU defence edifice. The political dimension offers general guidelines regarding the European future without ruling its materialisation. For example, Article 42 of the Lisbon Treaty introduced the gradual creation of a *common* defence without setting up a roadmap towards it. Moreover, the Treaty dictates that the creation will occur when the European Council decides. After Lisbon, the defence sector became subject to integration, though the MSs have maintained the first role in the relevant decision-making process. In this view, a supranational load of the political dimension signifies that a new issue area is under consideration for joint action, even by holding constant the level of the bestowed competencies to supranational entities, i.e. it points to spill-around.

On the other hand, intergovernmental load signifies increasing a common concept but excluding supranational entities' involvement, i.e. retrenching. When a document belongs to Pol\_s, it points to the option of spill-around; when it belongs to Pol\_i, it points to retrenching.

Given these points, let us name D, any subset of the examined documents and define Tr as the trend of the integration process. Then, the following fuzzy rules can be inferred:

If  $D \in \text{Pol}_s$ , THEN  $\text{Tr} = \text{spill-around}$  {3},

If  $D \in \text{Pol}_i$ , THEN  $\text{Tr} = \text{retrench}$  {4}.

Similarly, the relation of the rest sets to Schmitter's options can be delineated. The economic dimension inherently attracts the involvement of the very supranational entity of the EU, the Commission, under its competencies assigned by the Treaties. Nevertheless, the Commission's involvement does not automatically lead to the supranationalisation of the CSDP, even if it constitutes a paradigm shift (Haroche, 2020). From this point of view, the economic dimension with supranational load corresponds to the option of build-up because it signifies an increase of the competencies already bestowed to a supranational entity, the Commission, though without integrating the defence sector. The case of the EDF illustrates this option. It allowed the Commission to get involved in funding PESCO projects without making them supranational.

On the contrary, the economic dimension with intergovernmental load fits with the muddle-about option. The economic sector primarily falls under the Commission's remit. Intergovernmental loads in the economic dimension signify that the MSs limit central bodies' capacity to materialise the outcome of their

involvement. All these considered, the following rules can be defined:

If  $D \in \text{Eco}_s$ , THEN  $\text{Tr} = \text{build-up}$  {5},

If  $D \in \text{Eco}_i$ , THEN  $\text{Tr} = \text{muddle-about}$  {6}.

The procedural dimension refers to implementing a common policy by establishing appropriate mechanisms. In this view, the procedural dimension with supranational load implies the spillover option since implementing a policy would be pushed to supranational entities. By analogy, intergovernmental load in the procedural dimension indicates retrenching since it points to implementing a common policy or jointly standardising a process without transferring new competencies to Brussels. An indicative example is the PESCO due to its intergovernmental features, especially in decision-making. Therefore, the following rules can be applied:

If  $D \in \text{Pro}_s$ , THEN  $\text{Tr} = \text{spillover}$  {7},

If  $D \in \text{Pro}_i$ , THEN  $\text{Tr} = \text{retrench}$  {8}.

The military dimension constitutes the core of the defence sector. If it carries a supranational load, it corresponds to the spillover option because military operations and the EU's defence planning will be supranationalised. On the contrary, intergovernmental aspects point to retrenching since no supranational body with military competencies is involved. Hence, the rules below are defined:

If  $D \in \text{Mil}_s$ , THEN  $\text{Tr} = \text{spillover}$  {9},

If  $D \in \text{Mil}_i$ , THEN  $\text{Tr} = \text{retrench}$  {10}.

The table below offers an aggregated view of rules {3} to {10}.

*Table 4: Aggregated fuzzy rules*

Sets	Indicating Trend
$D \in \text{Pol}_S$	Spill-around
$D \in \text{Pol}_I \cup \text{Pro}_I \cup \text{Mil}_I$	Retrench
$D \in \text{Eco}_S$	Build-up
$D \in \text{Eco}_I$	Muddle-about
$D \in \text{Pro}_S \cup \text{Mil}_S$	Spillover

The spill-back option is absent since no reference was found for freezing the EU defence development process. These rules allow the modification of the original Schlitter's (1970) figure to match the defined sets.

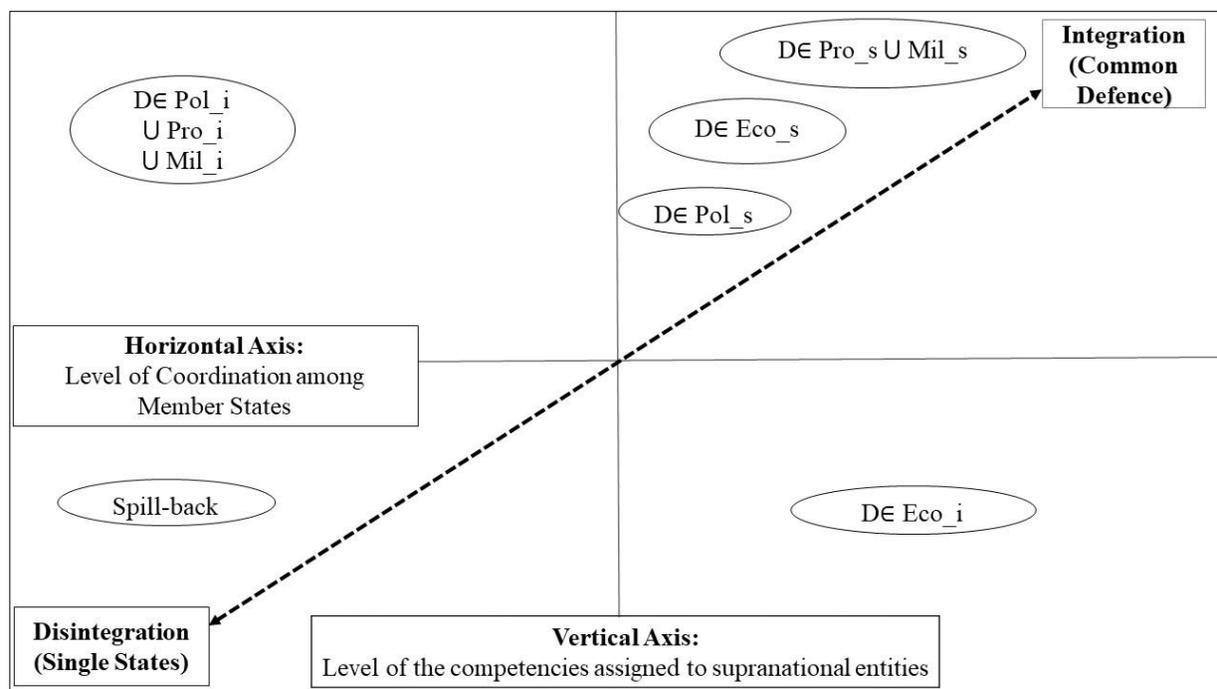


Figure 2: Fuzzy rules' placement in Schmitter's elaborated spillover version

As is shown, the upper right quarter contains the closer to the creation of common defence configurations. Identifying how the examined documents sit in this diagram presupposed the clarification of when a document decisively belongs to a load's subset. This process was a two-step: estimating the dimension where the document mainly participates and then calculating the prevailing option. In other words, fuzzy sets were turned to crisp once again.

For estimating the primary dimension, the following logic, which adapts Tsikrika's (2009) notices for text information retrieval utilising measurements common in document analysis and information retrieval, that is to say, *term frequency* (denoted as *tf*) and *inverse document frequency* (denoted as *idf*), was applied:

- a. Let name  $gm \in [0,1]$  the graded membership of a specific dimension in a given document<sup>1</sup>, and *avg\_gm* the average graded membership of this dimension in the whole corpus.
- b. The closer the *gm* is to the 1, the more features of this dimension are met, as the fuzzy sets theory suggests. Therefore, a  $gm \in [avg\_gm, 1]$  indicates a significant presence of this dimension in a given document.
- c. Then the rules below were followed:
  - I. If  $gm \geq avg\_gm$ , this specific dimension is *decisively present* in this document.

<sup>1</sup>The *gm* of a document coincides with its *tf* due to the methodology used for grading memberships.

- II. If  $gm < avg$ , this specific dimension *is not decisively present* in this document.
- III. If  $N$  is the number of documents in the corpus, and  $n$  is the number of documents in which a dimension is *decisively present* (according to steps i and ii above), then  $idf = \log \frac{N}{n}$ .
- IV. The  $tf*idf$  signifies the essential dimension within a specific document.

Then, rules {1} and {2} were applied to each document's essential dimension. Findings showed that the retrench option dominates 62 cases; the spill-around follows with 33 incidents across the sample of 95. The model appropriately performed as its accuracy was 96%, and Cohen's Kappa ( $k$ ) was 0,905 (for assessing a model's accuracy and Cohen's Kappa, see Widmann, 2020).

These findings underline a reluctance to create an integrated common defence and a preference for intergovernmental cooperation. Such cooperation has often been described as differentiation, denoting 'any modality of integration or cooperation that allows states (members and non-members) and sub-state entities to work together in non-homogeneous, flexible ways' (Lavenex & Križić, 2019, p. 3). Scholars have mentioned various forms of differentiation (Wessels & Gerards, 2018; Telle et al., 2021).

In any case, there seems to be a core of MSs participating in most defence-related mechanisms. However, their commitment to the defence element of the CSDP seems loose. Indicatively, Bunde (2021) characterises German efforts for the EU's defence integration as symbolic, not to mention the case of several PESCO projects that progress slowly (EU Council, 2020), mainly due to a culture of non-compliance by MSs (Biscop, 2020). Given these points, attention must be paid to the fact that the MSs do not always see differentiation in security and defence issues as a vector toward integration (Siddi et al., 2022).

#### 3.4 Spillover signs

An interesting pattern emerged when examining the fuzzy sets, leaving aside the limits of the  $tf*idf$  results and rules {1},{2}. Then, rules {3} to {10} were grouped, as in Table 4 and simple relations between fuzzy sets were applied. If  $A$  and  $B$  are fuzzy sets, and  $\mu_A(x)$  and  $\mu_B(x)$  are the corresponding graded memberships of an element  $X$ , the graded membership of the union is  $\mu_{A \cup B}(x) = \max(\mu_A(x), \mu_B(x))$  (Smithson & Verkuilen, 2006, p. 9). The results of this operation are schematically shown in Diagram 3.

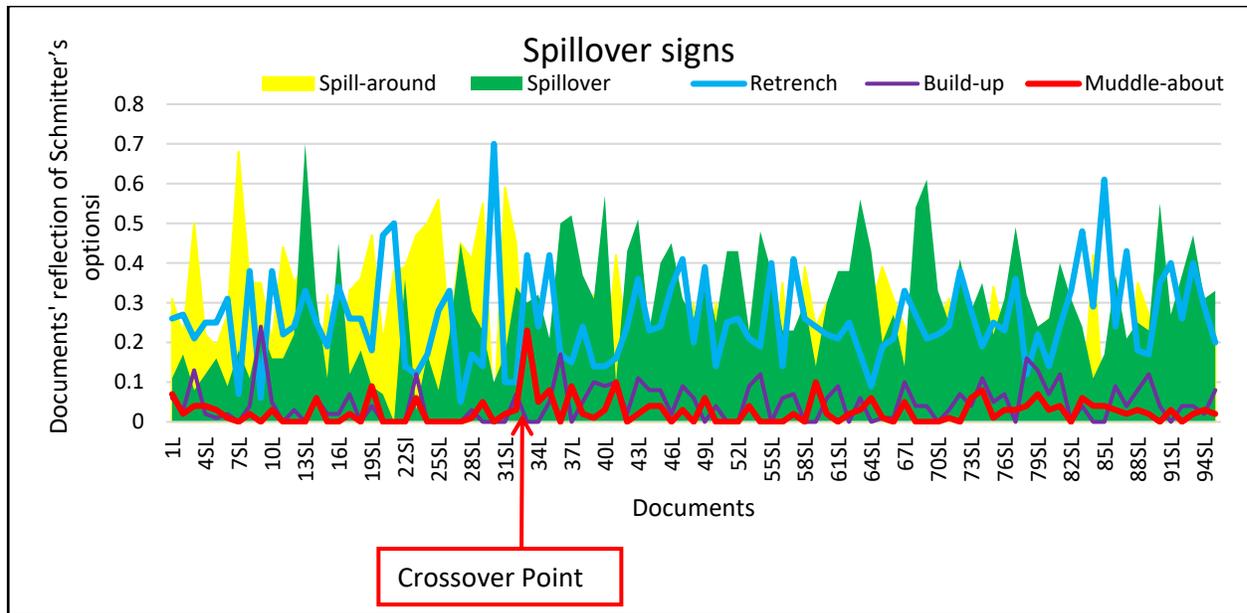


Diagram 3: Prevailing options according to the document's indications

The diagram indicates signs of three options in the interval [SL1, SL31]: spill-around, spillover and retrench. The first is attributed to the supranational loads of the prevailing political dimension. Instances of strong supranational load in the procedural dimension gave spillover signs, countered by cases of intergovernmental loads in both the political and procedural dimensions, signalling the retrench option.

After SL31, the spillover option enhances its dynamic; the retrench option also seems to have a non-neglectable presence, whereas the spill-around decreases. At first glance, these findings differ from those when  $tf * idf$  and rules {1},{2} were considered. However, they sound reasonable if the focus is on the internal loads of the political and procedural dimensions, respectively. The spillover and the retrenching options are what the procedural dimension indicates according to rules {3} to {10}. The ratio  $Pro\_S/Pro\_I$  has gradually become over 1; thus, the spillover signs seem greater than retrenching. Still, they remain signs, for they have not developed such a dynamic to fulfil the *double rule*, thus overcoming retrenching resistance and generating spillover effects.

The spill-around option has not been eliminated after SL32, though it has decreased. This trend is attributed to the continuing, yet shrunk, presence of the political dimension with more supranational than intergovernmental loads. The fact that the overall political dimension has decreased in the procedural dimension's advantage explains the spill-around option's drawback.

From a neofunctional perspective, these findings reveal friction between the two key concepts: spillover and transfer of loyalty. Persisting spill-around and spillover signs denote that the defence sector has been subject to potential integration, mainly due to a realisation that individual member states can hardly treat modern

security and defence challenges. Nevertheless, this realisation has not yet generated such trust in supranational entities, allowing them to take the first role in handling such issues by transferring loyalty. Also, this lack of trust denotes the absence of functional spillover dynamics through which supranational bodies would have gained competencies and, this way, *de facto* loyalty. In other words, letting aside MSs' stances and decision-making processes, supranational bodies do not seem to be striving to become the key players in defence matters, even if the case of the Commission's involvement in the EDF points differently (Haroche, 2020).

#### **4. Discussion**

The findings underline two major points. First, the examined documents reflect MSs' consensus on the need for defence cooperation. Second, they appear to be reluctant to bestow competencies in supranational bodies. These observations imply the co-presence of two opposing dynamics. On the one hand, the political and economic dimensions send positive signs for creating an integrated common defence. On the other hand, the procedural and military dimensions halt these due to the retrenching option they reflect. In that respect, there is fertile ground for two dimensions, that is to say, political and economic, to be genuinely integrated easier than the other two, the procedural and military.

The differences between the four dimensions indicate friction between the two key concepts in which neofunctionalism grounds regarding the overall defence concept: spillover and transfer of loyalty. Even if fertility signs for a spillover effect are found, an unfulfilled transfer of loyalty does not allow integration to flourish. Vice versa, even if MSs appear reluctant to integrate the defence sector due to a lack of transfer of loyalty, integration seeds related to spillover signs are in place. A paraphrase of Mitrany's (1948, p. 351) argument that *the need for political cooperation favours MSs, but their adherence to defence segregation hampers them* fits well in the situation and describes the friction mentioned above adequately.

This friction is attributed to the fact that the political dimension, dominant up to document SL31 and non-neglectable afterwards, has not triggered a transfer of loyalty hitherto, regardless of its primarily supranational load that sends integrative signs. This can be explained by this article's definition of the political dimension. It carries guidelines instead of competencies, primarily found in the procedural set. Hence, if a transfer of loyalty is to happen, the procedural set shall overcome the defined *double rule* and, in doing so, decisively point to the spillover option instead of retrenching.

All in all, the identified trends do not currently match with a form of integration close to Haas's (2004, p. 5) notion, according to which the end state shall be a 'political community' or an undoubtedly common

defence in this case. Still, existing trends do not exclude such a future evolution under specific occurrences since the current state of the EU defence structure seems close enough to what Lindberg considered integration. The co-presence of two opposing dynamics, spillover and retrenching, especially after SL31, implies a dynamic situation that emulates a work in progress, i.e. a process. A fundamental part of this process is the gradual convergence of the involved actors' perspectives, EU entities, and MSs regarding the need for joint actions, though diverging views on materialising these actions are also present. Hence, the current status fulfils two of the three connotations of Lindberg's approach to integration, i.e., it is a process and reflects converging views for a matter.

However, it does not meet the third one, the realisation that a central body can better deal with defence matters. Thus, it does not facilitate the transfer of loyalty. Then again, it can be argued that it allows for satisfying it sooner or later. Even if retrenching solid indications currently halt existing spillover signs, the latter reveals roots of political spillover that, in turn, can generate functional spillover. Of course, this is subject to the realisation that the agreed political goals demand further integration of actions to be achieved. Besides, external shocks and crises can trigger such an evolution (Håkansson, 2021; Bergmann & Niemann, 2018) in the contemporary turbulent international environment.

Moreover, the potential successor of the procedural dimension is identified hereof as the economic one that carries mainly supranational loads linked to the Commission's involvement. Consequently, the seeds of a cultivated spillover have already been planted. Interestingly, the Commission's involvement came basically through PESCO projects' funding, though PESCO is considered an example of the procedural dimension with intergovernmental loads. This observation suggests that there is a potential for a supranational entity to get involved even when MSs select to retrench. The "failure" of the retrenching option can then be attributed to the pressure from the political dimension due to its solid supranational dynamics.

In any case, Haroche (2020) argues that the involvement of the Commission in the EDF illustrates a paradigm shift that allows the Commission to undertake action in areas previously perceived as prohibited. This shift aligns with a turn to a strategic approach concerning the defence industry, as Fiott (2015) noticed. Also, it indicates a fostering of EU coherence to the extent that coherence is considered the institutional coordination to align procedures, instruments and actors against security threats that transcend national borders (Carrapico & Barrinha, 2017).

Then again, if coherence is referred to at the procedural level, it implies converging views on the rules of the decision-making process (Brattberg & Rhinard, 2012, p. 562). From this point of view, convergence has not yet materialised. However, the ongoing prevalence of the procedural dimension after document SL32 stresses that the procedural dimension is underway.

## 5. Conclusion

In the final analysis, the identified trends leave space for two diverging scenarios for the future evolution of the currently identified differentiation. On the one hand, the gradually intensified involvement of the Commission in the defence sector and the push from the political dimension for a more solid supranational essence in procedural issues, such as the decision-making processes, are seeds of a potential spillover effect. Specifically, the Commission's involvement can generate a cultivated spillover; extensive use of a qualified majority can lead to a functional spillover.

On the other hand, seeds often fail to flourish. If the dominance of the retrenching option persists and the transfer of loyalty does not flourish, the EU's current configuration (which offers a framework for intergovernmental cooperation in defence matters based on differentiation) will remain.

To sum up, this article has adopted neofunctionalism to shed light on the EU's defence edifice. It proposed the distinction of four dimensions -political, procedural, economic and military- that compose the whole defence complex. It also subscribed to the use of fuzzy sets in order to clarify how these dimensions participate in the Union's defence configuration. It introduced fuzzy rules to examine the dynamics in developing the EU's defence structure and concluded that the dominating trends point to differentiation while spillover seeds also exist. Given these points, further research dedicated to the EU's defence sector is necessary to explore the exact form of the identified differentiation. Continuous monitoring of future documents by adopting a methodology similar to this article could support relevant research or refute the findings.

## References

- Bergmann, J., & Niemann, A. (2018) From Neo-Functional Peace to a Logic of Spillover in EU External Policy: A Response to Visoka and Doyle: A Spillover Logic in EU External Policy. *JCMS: Journal of Common Market Studies* 56(2), pp. 420–438.
- Biscop, S. (2020) *European Defence and PESCO: Don't Waste the Chance* (Policy Paper 1). EU Integration and Differentiation for Effectiveness and Accountability. Available at: [https://www.egmontinstitute.be/content/uploads/2020/05/euidea\\_policy-paper1-Sven\\_Biscop-mei2020.pdf?type=pdf](https://www.egmontinstitute.be/content/uploads/2020/05/euidea_policy-paper1-Sven_Biscop-mei2020.pdf?type=pdf) (accessed 28 July 2022)
- Brattberg, E., & Rhinard, M. (2012) The EU as a global counter-terrorism actor in the making. *European Security* 21(4), pp. 557–577.

- Bunde, T. (2021) Defending European integration by (symbolically) integrating European defence? Germany and its ambivalent role in European security and defence policy. *Journal of European Integration* 43(2), pp. 243–259.
- Carrapico, H., & Barrinha, A. (2017) The EU as a Coherent (Cyber)Security Actor?: The EU as a Coherent (Cyber)Security Actor? *JCMS: Journal of Common Market Studies* 55(6), pp. 1254–1272.
- Cladi, L. (2022) Persevering with bandwagoning, not hedging: Why European security cooperation still conforms to realism. *Defence Studies*, 22(4), pp. 624–643.
- Duchêne, F. (1973) The European Community and the Uncertainties of Interdependence. In M. Kohnstamm & W. Hager (Eds.) *A Nation Writ Large? Foreign-Policy Problems before the European Community*. London: Palgrave Macmillan, pp. 1–21.
- EU Council (2020) Council Recommendation of 15 June 2020 assessing the progress made by the participating Member States to fulfil commitments undertaken in the framework of permanent structured cooperation (PESCO). OJEU C 204, 18.6.2020: 1–7. Available at: <shorturl.at/pzOP6> (accessed 20 July 2022)
- EU Council (2021) *List of Council conclusions*. Available at: <https://www.consilium.europa.eu/en/documents-publications/public-register/council-concl/> (accessed 10 February 2022)
- EUR-Lex: Access to European Union Law (2021) Available at: <https://eur-lex.europa.eu/homepage.html> (accessed 10 February 2022)
- Fiott, D. (2015) European defence-industrial cooperation: From Keynes to Clausewitz. *Global Affairs* 1(2), pp. 159–167.
- Goldthau, A., & Sitter, N. (2015) Soft power with a hard edge: EU policy tools and energy security. *Review of International Political Economy* 22(5), pp. 941–965.
- Gray, C. S. (2014) *Strategy and defence planning: Meeting the challenge of uncertainty*. Oxford: Oxford University Press.
- Haas, E. B. (2004) *The uniting of Europe: Political, social, and economic forces, 1950-1957*. Indiana: University of Notre Dame Press.
- Håkansson, C. (2021) The European Commission's new role in EU security and defence cooperation: The case of the European Defence Fund. *European Security* 30(4), pp. 589–608.
- Haroche, P. (2020) Supranationalism strikes back: A neofunctionalist account of the European Defence Fund. *Journal of European Public Policy* 27(6), pp. 853–872.
- Hill, C., Smith, K. E., & European Parliament (Eds.) (2000) *European foreign policy: Key documents*. New York: Routledge.

- Hoijtink, M., & Muehlenhoff, H. L. (2020) The European Union as a Masculine Military Power: European Union Security and Defence Policy in 'Times of Crisis.' *Political Studies Review* 18(3), pp. 362–377.
- Jacoby, W. G. (1991) *Data theory and dimensional analysis*. London: Sage Publications.
- Keukeleire, S. (2010) European Security and Defense Policy: From Taboo to a Spearhead of EU Foreign Policy. In F. M. Bindi (Ed.) *The foreign policy of the European Union: Assessing Europe's role in the world*. Washington, DC: Brookings Institution Press, pp. 51–72.
- Krippendorff, K. (2004) *Content analysis: An introduction to its methodology*. Los Angeles: SAGE.
- Lavenex, S., & Križić, I. (2022) Governance, Effectiveness and Legitimacy in Differentiated Integration: An Analytical Framework. *The International Spectator* 57(1), pp. 35–53.
- Manners, I. (2002) Normative Power Europe: A Contradiction in Terms? *JCMS: Journal of Common Market Studies* 40(2), pp. 235–258.
- Marsh, D., Stoker, G. (Eds.) (2002) *Theory and Methods in Political Science, Political Analysis*. Palgrave, Houndmills; Basingstoke; Hampshire.
- Mitrany, D. (1948) The Functional Approach to World Organization. *International Affairs*, 24(3), pp. 350–363.
- Riddervold, M. (2016) (Not) in the Hands of the Member States: How the European Commission Influences EU Security and Defence Policies *JCMS: Journal of Common Market Studies* 54(2), pp. 353–369.
- Riekeles, G. E. (2016) A Security and Defence Union. *European View* 15(1), pp. 13–26.
- Rieker, P. (2009) The EU-A Capable Security Actor? Developing Administrative Capabilities. *Journal of European Integration* 31(6), pp. 703–719.
- Rihoux, B., & Ragin, C. C. (Eds.) (2009) *Configurational comparative methods: Qualitative comparative analysis (QCA) and related techniques*. Thousand Oaks: Sage.
- Risse, T. (2005) Neofunctionalism, European identity, and the puzzles of European integration. *Journal of European Public Policy* 12(2), pp. 291–309.
- Rosén, G., & Raube, K. (2018) Influence beyond formal powers: The parliamentarisation of European Union security policy. *The British Journal of Politics and International Relations* 20(1), pp. 69–83
- Saurugger, S. (2014). *Theoretical approaches to European integration*. Palgrave Macmillan.
- Schmitter, P. C. (1970) A Revised Theory of Regional Integration. *International Organization* 24(4), pp. 836–868.
- Siddi, M., Karjalainen, T., & Jokela, J. (2022) Differentiated Cooperation in the EU's Foreign and Security Policy: Effectiveness, Accountability, Legitimacy. *The International Spectator* 57(1), pp. 107–123.
- Smithson, M., & Verkuilen, J. (2006) *Fuzzy set theory: Applications in the social sciences*. Thousand Oaks: Sage Publications.

- Strange, M. (2015) Power in Global Trade Governance: Is the EU a Unitary Actor, a Tool for Dominance, or a Site of Contestation? GATS and the TTIP Negotiations. *International Journal of Public Administration* 38(12), pp. 884–894.
- Sweeney, S., & Winn, N. (2022) Understanding the ambition in the EU's Strategic Compass: A case for optimism at last? *Defence Studies* 22(2), pp. 192–210.
- Telle, S., Brunazzo, M., & Doidge, M. (2021) The Member States and Differentiated Integration in the European Union. *Australian and New Zealand Journal of European Studies* 13(3), p. 7.
- Toje, A. (2014) *European Union as a small power: After the post-Cold War*. UK: Palgrave Macmillan.
- Tranholm-Mikkelsen, J. (1991) Neo-functionalism: Obstinate or Obsolete? A Reappraisal in the Light of the New Dynamism of the EC. *Millennium: Journal of International Studies* 20(1), pp. 1–22.
- Tsikrika, T. (2009) Aggregation-Based Structured Text Retrieval. In: L. Liu & M. T. Özsu (Eds.) *Encyclopedia of database systems*. New York: Springer, pp. 63–71.
- University of Pittsburgh. (2011) *Archive of European Integration* [Educational]. Archive of European Integration. Available at: [http://aei.pitt.edu/view/eusubjects/common\\_foreignandsec\\_uritypolicy.html](http://aei.pitt.edu/view/eusubjects/common_foreignandsec_uritypolicy.html) (accessed 12 December 2021)
- Wessels, W., & Gerards, C. (2018) *The Implementation of Enhanced Cooperation in the European Union*. European Parliament. Available at: <http://www.europarl.europa.eu/supporting-analyses> (accessed 10 June 2022)
- Whitman, R. G. (1998) *From civilian power to superpower? The international identity of the European Union*. New York: Macmillan Press.
- Whitman, R. G. (2004) NATO, the EU and ESDP: An emerging division of labour? *Contemporary Security Policy* 25(3), pp. 430–451.
- Widmann, M. (2020) Cohen's Kappa: What It Is, When To Use It, How to Avoid Pitfalls. In *From Modeling to Model Evaluation*. Knime, pp. 35–42. Available at: <https://www.knime.com/knimepress/from-modeling-to-model-evaluation> (accessed 10 July 2021)
- Zadeh, L. A. (1965) Fuzzy sets. *Information and Control* 8(3), pp. 338–353.