**The semantic development of *essential*, *crucial* and *needful*:
Paths to deontic meaning***

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In the linguistic literature on modality, much attention has been devoted to modal auxiliaries (e.g., Lyons 1977: 787-849; Palmer 1979; Coates 1983; Bybee et al. 1994), whereas adjectival predicates have been rarely discussed (some synchronic accounts are Riviere 1983 and Nuyts 1993, 2000). This paper intends to fill this gap in the literature by presenting three case studies of adjectives that have developed deontic meaning in a process of semantic extension and that can be used in deontic expressions in Present-Day English. More specifically, I will describe pathways to deontic meaning for the adjectives *essential*, *crucial*, and *needful*, which may arguably serve as exemplars for other adjectives that acquired deontic meaning, such as *vital* or *critical*. As a working definition, I take deontic modality to express the degree of desirability of a certain State of Affair (SoA) (Verstraete 2005). To put it more precisely, in deontic utterances a modal source (e.g., the speaker) assesses the desirability of a particular action to be carried out by a particular agent. Examples of deontic utterances with the three adjectives under investigation are given in (1) to (3).

- (1) However, before becoming too excited about such knowledge, it is **essential** to remember that most of the research has been conducted in one particular country, namely in the USA, (...). (CB)
- (2) In our view, it is **crucial** that family workers try to distinguish between the problems that society and its institutions induce and those that arise from within the family itself, (...). (CB)
- (3) Your sister be [sic] a woman now, young Jahdo, and that's all you need to know about it. It's **needful** for us to set about finding her a husband soon. (CB)

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These three adjectives can have deontic meaning in Present-Day English, as shown in (1) to (3), but this was not always the case in earlier stages of English. In fact, *essential* and *crucial* are loan words of Romance origin, and it was not possible to use them in deontic utterances at the time when they were borrowed into English. *Needful*, on the other hand, is a native Germanic word, but its earliest uses are not deontic either. For each of the adjectives, the earliest (non-modal) attestation in the OED is given in (4) to (6).

(4) þe **Escencyalle** Ioy es in þe lufe of Godd (...). (*The essential joy is in the love of God*) (OED 1340)

(5) **Crucial** Incision, the cutting or lancing of an Impostume or Swelling cross~wise. (OED 1706).

(6) Gief þe **nedfulle**, help þe hauelease. (*Give to the needful, help the havenless*) (OED c1200)

In the literature on grammaticalization, many efforts have been made to describe pathways to deontic meaning for verbs (Traugott 1989; Sweetser 1990; Bybee et al. 1994; Traugott and Dasher 2002; Loureiro Porto forth.). The modal auxiliary *may*, for instance, is known to derive from Old English *magan*, ‘to be strong’, ‘to have the physical ability’, and later developed the meaning of (moral) acceptability/permission (as in, e.g., *you **may** voice criticism if things are not going as you would like them to*) and epistemic possibility (as in, e.g., *I don’t see his car. He **may** have left already*). This change/semantic extension from dynamic (ability) over deontic to epistemic meaning has also been proposed for the modals *can* and *must* (Denison 1993: 292-339). For adjectives, however, similar diachronic hypotheses have not been put forward yet.

In what follows, I will take a closer look at the semantic development of the adjectives *essential*, *crucial* and *needful*, and propose a diachronic pathway to deontic meaning for each of them. I will argue that in each of these developments three semantic properties are relevant, viz. relationality, potentiality, and the notion of desirability. How these properties are acquired, however, is different for each adjective. For *essential*, for instance, I will show that the development of relationality

is driven by patterns of co-occurrence with relational nouns such as *feature*, *property*, or *part*. As to *crucial*, on the other hand, all three of the semantic properties will appear through metaphorical extension. Also, for each adjective the semantic findings will be corroborated by grammatical data, as the various stages in their semantic development are typically used in different grammatical constructions or complementation patterns.

The structure of this paper is as follows. Section 1 deals with the semantic domain of modality in general, with special attention to deontic meaning. It will further characterize the final stage of the semantic developments under investigation. Section 2 briefly outlines the methodology of this study. Sections 3 to 5 treat the semantic development of *essential*, *crucial*, and *needful* respectively. In these descriptive sections, I will focus on the semantic properties of relationality, potentiality, and desirability in order to explain the change from non-deontic to deontic meaning. I will also go into the factors driving the various semantic changes. In addition to the semantic descriptions, I will also discuss the findings of the investigation into the grammatical development of the adjectives as further evidence for the various semantic stages. In section 6, finally, I present my conclusions and formulate some questions for further research.

1. The semantic domain of modality

As Van der Auwera and Plungian put it, “Modality and its types can be defined and named in various ways. There is no one correct way. The only requirement is that one makes clear how one uses one’s terms” (1998: 80). Indeed, modality remains a topic of interest to many linguists, and many proposals have been made to define the notion itself and its types. Traditionally, modality has been described in terms of epistemic, deontic and dynamic types of meaning (Palmer 1979, 1990, 2001; Van der Auwera and Plungian 1998). For the description of these types, it is useful to make a distinction between two basic concepts, which are termed *modal source* and *modal agent* in Verstraete (2005) (building on Davies 1979). The modal source is the person (or other entity) who is “responsible for making the assessment encoded by the modal expression”, and the modal agent is the person who is expected, willing or able to carry out the action in question (Verstraete 2005: 1409). In this section, I will describe each of the three modal domains in terms of the notions of modal source and modal

agent. As the main focus of the paper is on deontic meaning, this domain will receive most attention.

Epistemic modality is concerned with the estimation of the likelihood or probability of a proposition. As such, epistemic utterances qualify the truth of a proposition, that is, they express the speaker's degree of commitment to the truth of the proposition in question. Thus, they always involve a modal source (i.e., the speaker), who is responsible for the assessment in terms of likelihood. As the speaker judges the proposition as a whole (Hengeveld 1987; Nuyts 2000), epistemic expressions do not involve a modal agent. An example is given in (7).

- (7) The value of units can go down as well as up and it is **possible** that you may not get back the full amount invested. (CB)
- modal source: speaker
- modal agent: -

In (7), the speaker assesses the proposition 'you may not get back the full amount invested' as possible (i.e., epistemically possible as opposed to epistemically necessary, which can be expressed by, for instance, the adjectives *sure* or *certain*). In this example, it is left unclear on what basis the speaker makes this assessment. When the source of information on which the judgement is based is expressed (e.g., hearsay, inference, or evidence of the senses), the type of modal meaning involved is often termed evidential instead of epistemic. However, a discussion of the question whether evidentiality is a type of modality on its own (cfr. Nuyts 2000), or whether it should be subsumed under epistemic modality (cfr. Palmer 1998: 51) is beyond the scope of this paper. Most importantly, both involve a modal source making the assessment, but no modal agent.

Deontic modality differs most notably from epistemic (and evidential) modality in that it involves both a modal source and a modal agent. As I have mentioned above, I take deontic modality to express the degree of desirability of a certain SoA. More precisely, in deontic utterances a modal source (e.g., the speaker) assesses the

desirability or (moral) acceptability/necessity¹ for an agent to carry out a certain action². The source thus expresses their commitment to the SoA on the basis of moral principles that are external to that SoA. Examples were already given in (1) to (3); example (8) repeats (2).

- (8) In our view, it is **crucial** that family workers try to distinguish between the problems that society and its institutions induce and those that arise from within the family itself (...). (CB)

modal source: the speaker (and his associates ‘we’)

modal agent: family workers

(modal action: try to distinguish between the two types of problems)

The nature of deontic modality is a matter of continuous linguistic discussion. In most accounts, it is defined in terms of permission (deontic possibility) and obligation (deontic necessity) (Von Wright 1951, 1971; Lyons 1977; Palmer 1979, 1998; Van der Auwera and Plungian 1998). This traditional characterization, however, carries assumptions about both the source and the agent. More precisely, the modal source is assumed to have some authority over the agent (Lyons 1977: 824), and the agent is assumed to be willing to carry out the modal action in the case of permission, but unwilling to do so in the case of obligation (Verstraete 2005: 1409). In line with Nuyts et al. (2005)³, I adopt a broader definition of deontic modality, which also includes utterances that express someone’s assessment of an action in terms of desirability or moral acceptability/necessity, but that do not involve an obligation or a permission. An example of such an utterance is given in (9).

¹ Nuyts et al. (2005) use the notion ‘morality’ for lack of a better term. “It need not involve societal principles, however, it can also concern strictly personal norms of the assessor” (2005: 8 fn3).

² Deontic expressions in which the modal source assesses the desirability of a state rather than an action may pose a problem for the notion of ‘modal agent’. In these cases, the modal agent can be seen as the person who is in charge of bringing about the state involved, and not literally as an agent carrying out a certain action. In order to cover both states and actions, I use the term SoA.

³ Nuyts et al. (2005: 51) also argue that deontic modality, as an attitudinal category, “affects the state of affairs as a whole and is not tied to one of the participants (notably, the agent participant)”. However, I do not agree with them on that point. As in deontic expressions what is assessed as desirable is typically actions, which always imply an agent, the assessment does not apply to the proposition as a whole, but is tied to the agent participant, since it is they who are desired to carry out the action in question.

- (9) The government **must** act. It **must** make up its mind about priorities – offices or houses, housing estates or luxury buildings. (Palmer 1979: 152 (W.15.1.48-3))

With this example, Palmer (1979) illustrates what he terms rational necessity as opposed to deontic necessity. His argument runs as follows: “The speaker is not, one would assume, in a position to give the government orders or to lay any obligation on it to act. Nor is he saying that there are circumstances which force it to act. He is merely stating what he thinks is rational in the extreme – ‘It is utterly unreasonable for the government not to act’” (Palmer 1979: 152). Indeed, the modal source (i.e., the speaker) does not impose an obligation on the agent (i.e., the government), but only states what he thinks is most reasonable, or morally necessary for them to do. It will become clear that the adjectives studied in this paper typically express what Palmer calls rational necessity, and what I, following Nuyts et al. (2005), define as deontic meaning.

Finally, dynamic modality differs from both epistemic and deontic modality in that it does not involve a modal source. Whereas epistemic and deontic modality can be said to be both attitudinal categories, i.e., categories that involve an assessor (or source) indicating their degree of commitment to the SoA on the basis of principles external to that SoA, dynamic modality involves indications of abilities/possibilities or needs/necessities inherent in agent participants or in situations (Palmer 1979: 71-78; Nuyts et al. 2005: 8)⁴. Agent-internal dynamic expressions obviously involve an agent (e.g., *some athletes* in *Some athletes are **able** to run many miles at a time* (CB)), but situation-internal expressions do not necessarily do so. Consider the following examples.

- (10) It **can** rain here for weeks in a row in winter. (Nuyts et al. 2005: 8)

modal source: -

modal agent: -

⁴ Some accounts on modality also consider expressions of volition as dynamic in meaning, although it is difficult to integrate them in the possibility-necessity paradigm (Palmer 1979: 108-10).

(11) We must persuade our mps to support the Bill - it's a Private Member's Bill, and so it is **essential** that at least 100 mps support it, or it will get thrown out without a second reading. (CB)

modal source: -

modal agent: at least 100 mps

In (10) the speaker describes the normal weather conditions at the place where they are located at the moment of speech⁵ (situational possibility) (the speaker does not give an assessment of the degree of likelihood of the proposition, as in *It will probably rain here for weeks in a row in winter*). It is clear that the situation in (10) is no action, but rather a climatological process, and as such does not involve an agent. In (11), the necessity of the at least 100 mps support for the Private Member's Bill clearly is imposed by the British parliamentary system. If the bill does not get 100 votes, it will not be granted the chance of a second reading (situational necessity). In this example, however, it is an action (the supporting of the bill) that is presented as necessary on SoA-internal grounds (according to the stipulations of the British parliamentary system). As an action always implies an agent (ic. 100 Members of Parliament), this expression of dynamic necessity does involve an agent. As such, this dynamic utterance only differs from a deontic one in the absence of a modal source, or, in that the necessity of the action is presented on the basis of SoA-internal rather than SoA-external (moral) arguments. It is important to note that in the semantic development of the adjectives, expressions of situational necessity appear earlier than those of deontic meaning (*essential*, *crucial*) or at around the same time (*needful*).

In conclusion, the three different types of modal meaning distinguished above, i.e., epistemic, deontic and dynamic, can be characterized in terms of different combinations of modal source (the person assessing the plausibility/desirability of an SoA) and modal agent (the person expected/willing/able to carry out an action). Table 1 below summarizes the discussion.

⁵ Palmer (1979: 152) would regard this example as expressing existential possibility. I will, however, not go further into the distinction between existential, epistemic and dynamic modality.

types of modality modal roles	epistemic	deontic	dynamic	
	(7)	(8), (9)	agent-internal	situational (10), (11)
modal source	+	+	-	-
modal agent	-	+	+	-/+

Table 1: The configuration of modal roles within the modal domain (based on Verstraete 2005: 1410)

Most importantly, deontic modality involves both a modal source and a modal agent. As outlined above, in deontic expressions a modal source (the speaker or another entity) assesses the desirability of a certain action to be carried out by an agent. As this action typically is potential (not yet realised, but possibly so in the future) and as the assessment encoded by the adjectives under investigation is one of deontic necessity, it is clear that the development of the semantic properties of potentiality and desirability is critical to the development of deontic meaning. The relevance of the property of relationality is less straightforward, but will be explained in the descriptive sections 3 to 5. Before I discuss the results of my diachronic semantic investigation, however, I will first briefly deal with matters of methodology.

2. Methodology

For this study, extensive use has been made of the electronic version of the *Oxford English Dictionary* (OED), especially the etymological information given for each lemma and its general quotation database. As nearly all quotations are precisely dated, they were very helpful in investigating the semantic development of the adjectives in question. Apart from the OED, diachronic and synchronic corpora have also been used to corroborate the semantic findings. Historical data have been drawn from the *Helsinki Corpus* (HC), ranging from 750 until 1710, and the *Corpus of Late Modern English Texts* (CLMET), covering the 18th and 19th century (De Smet 2005). Synchronic data have been extracted from the *Collins Cobuild Corpus* (CB).

As the nature of this semantic study may not require quantified corpus research, no such results (absolute nor relative figures) will be given. Rather, the corpus examples are used to examine the semantic development of the three adjectives under inquiry, and the various grammatical constructions in which they are used. In the semantic

investigation, special attention has been paid to describing the original senses and the ones that developed later in a non-circular way (Wilkins 2000) and without any commitment to a particular semantic framework. In addition to establishing different meanings, an important part of the research also focuses on the driving forces behind the semantic changes. As to *essential*, for instance, the development of deontic meaning is mainly driven by patterns of co-occurrence. For *crucial*, on the other hand, the development is driven by metaphorical extension rather than collocational patterns. In the following descriptive sections, I will always first report on the semantic investigation of the adjective, and secondly present the grammatical data as confirming evidence.

3. The semantic development of *essential*

This section describes the semantic development of *essential*: how it was borrowed into English as a non-modal adjective and how it developed the semantic properties of relationality (discussed in section 3.1), and potentiality and desirability (discussed in section 3.2). As I already referred to above, the main driving factors of these semantic changes or extensions are patterns of co-occurrence. In section 3.3, I will discuss the grammatical constructions in which *essential* was used throughout the three stages of semantic development and how these patterns may add evidence for the development proposed.

3.1 The semantic property of relationality

As I have already mentioned, *essential* is not a Germanic word, but was borrowed into English from Latin in the 14th century. More precisely, the etymological information of the OED states that *essential* is an adaptation of the Latin word *essentialis*, which in turn derives from the noun *essentia* ‘essence’. The original meaning of *essential* can be paraphrased as ‘that is such by its true nature’, or ‘that is such in the true sense of the word’. The OED gives ‘that is such by essence, or in the absolute or highest sense’. As such, in this first stage of semantic development, *essential* does not have relational or potential meaning, nor does it involve a notion of indispensability or desirability. The first attestation in the OED will make this clear.

- (12) For þe souerayne and þe **Escencyalle** Ioy es in þe lufe of Godd by hym-selfe
and for hym-selfe, and þe secundarye es in comonyng and byhaldyng of

Aungells and gastely creaturs. (*For the sovereign and the essential joy is in the love of God by himself and for himself, and the secondary [joy] is in the commoning (intercourse) and beholding of Angels and ghostly creatures*) (OED 1340; HC 1420-1500)

In this example, the adjective *essential* functions as a classifier and not as an attribute of the noun *joy*. A classifier is a prenominal element in the noun phrase (NP) that designates a subtype of the general type designated by the head noun, such as, for instance, *old* and *new* in *old testament* versus *new testament*, or *red* and *white* in *red wine* versus *white wine* (classifiers can be opposed to attributes, which assign a (typically gradable) quality to the instance referred to by the NP, such as, for example, *new* in *a new car*, or *beautiful* in *a beautiful car*) (Bolinger 1967: 14-20; Teyssier 1968; Halliday 1994: 184-86; Vandelanotte 2002). Semantically, classifiers thus denote a subtype of the more general type referred to by the head noun, and “tend to be organized in mutually exclusive and exhaustive sets” of that general type (Halliday 1994: 185). Further, there are also two syntactic criteria that are often cited to detect classifiers. First, classifiers can only occur in prenominal position and never appear predicatively (Vandelanotte 2002: 233). Second, as classifiers do not attribute a quality to the referent of the NP, but rather modify the reference of the head noun (Bolinger 1967: 14-15), they are not gradable, i.e., they “do not accept degrees of comparison or intensity” (Halliday 1994: 185). Attributes, on the other hand, are typically gradable and can occur in prenominal or in predicative position (Halliday 1994: 184-86). In (12), two types of joy are mentioned that are opposed to each other: *essential joy* (meaning ‘true’, ‘basic’, ‘substantial’ or ‘primary’ joy) versus *secondary joy* (meaning ‘derived’, ‘accidental’ joy). Indeed, it can be argued that *essential joy* and *secondary joy* are presented as mutually exclusive and exhaustive sets of joy (Halliday 1994: 185). Semantically, therefore, *essential* functions as a classifier, and does not attribute a gradable quality to the instance designated by the NP. As to the syntactic criteria, in the earliest OED quotations of *essential* in its original sense (which are, however, not that many), predicative or graded uses cannot be found. So, in view of the semantic evidence in favour of a classifier analysis and in the absence of syntactic counter-evidence, I assume that *essential* in (12) functions as a classifier.

The first semantic property which *essential* acquires in its development to deontic meaning is that of relationality. As a classifier of abstract nouns such as *joy*, *love*, *happiness*, or *misery*, *essential* does not really link these concepts with other concepts (on an abstract level), but only designates a subtype of one general type. It is only when *essential* appears in co-occurrence with another type of nouns, viz. relational nouns, that it acquires relational meaning. Relational nouns, like *father*, differ from non-relational nouns, like *chair*, in their semantic or conceptual structure. In cognitive semantics, the designata of nouns (i.e., things) are conceptually described in terms of *figure* and *ground*, a pair of notions taken from Gestalt psychology (Talmy 1978) (Langacker (1987a: 183) proposes the terms *profile* and *base*). Specifically, in the conceptual structure of things, the figure is the element or substructure that is perceived as “standing out from the remainder (the ground) and [is] accorded special prominence” (Langacker 1987a: 120). Relational nouns, like *father*, are characterized by a figure (i.e., the male parent) that makes schematic reference to another thing (i.e., the offspring), and have the conception of a relationship as ground (i.e., the parent-offspring relationship) (cfr. Langacker 1987b: 38-39). Non-relational nouns, like *chair*, do not have a figure that makes schematic reference to another entity, nor do they have the conception of a relationship as ground. As will be shown below, it is due to collocation with a specific type of relational nouns that *essential* will acquire relational meaning.

From the 17th century onwards, *essential* appears in co-occurrence with relational nouns that have the conception of a part-whole or inclusion relationship as their ground (e.g., *property*, *attribute*, *feature*, *part*). Examples are given in (13) and (14).

(13) Heate is the **essentiall** propertie of fire (OED 1620)

(14) Mercy as it is Radically in God and an **essentiall** attribute of his. (OED 1624)

In these two examples, *essential* denotes a sub-classification of the relational nouns *property* and *attribute*, which both have the abstract meaning of a part within a larger whole. The nature of the relationship that constitutes their ground (i.e., an inclusion relationship) is crucial to the development of relational meaning of the adjective itself. More precisely, the paraphrase proposed for the original meaning of *essential* in (12)

cannot be applied to the use of *essential* in expressions such as (13) and (14) anymore. In (13), for instance, *essentiall propertie* does not mean ‘that is a property in the true sense of the word’, or ‘that is a property by its true nature’. Rather, the conceptual relation of inclusion present in the ground of the head noun of the NP *the essentiall propertie of fire* provides a better paraphrase: ‘a property of the essence of fire’, or ‘a property constituting the essence of fire’. On a schematic level, ‘an essential property of Y’ corresponds semantically to ‘a property of the essence of Y’. As such, it can be argued that relational nouns based on a part-whole or inclusion relationship are semantically permeable and therefore, as will be shown below, able to transfer their relational property to the adjectives that classify them.

Evidence for the semantic correspondence between the two paraphrases given above and for the proposed semantic permeability of relational nouns such as *property* and *feature* can be found in other NPs having the same internal structure as (13) and (14) (classifier⁶ + relational noun + *of*-PP postmodifier).

- (15) His argument was that religion is a structural as well as a cultural feature of all societies and that its ‘invisible’ functions are no less important for not being empirically available for observation and measurement. (CB)
- (16) The other most notable architectural feature of the town is the castle, situated on a promontory surrounded by a path, and overlooking a steep descent to the river and the weir. (CB)

In (15), for instance, religion is argued to be a feature of the structure and culture of all societies. In (16), the castle is presented as one of the most notable features of the architecture of the town. In both paraphrases, the classifying adjectives permeate, as it were, the relational noun (*feature*) and enter into the latter’s inclusion relationship with the head noun of the NP of the *of*-PP (i.e., *societies* in (15) and *town* in (16)).

⁶ Evidence for the argument that the semantic correspondence only applies to NPs with a classifier can easily be found in trying to paraphrase NPs in which the prenominal adjective does not function as a classifier, but rather as an attribute. Consider the following expression:
Another important feature of the hangover is the reduction in blood sugar level (hypoglycaemia). (CB)
 It is clear that *another important feature of the hangover* can hardly be paraphrased as ‘another feature of the importance of the hangover’, and consequently, that there is no semantic correspondence.

The semantic permeability of the relational nouns with which *essential* co-occurs from the 17th century onwards actually implies that the meaning of *essential* in expressions such as (13) and (14) is relational too. In (13), for instance, *essential* links *heat* with *fire*, as heat is said to constitute the essence of fire, and in (14), it links *mercy* with *God*, as mercifulness is argued to constitute the essence of God. Thus, heat is essential to fire, and mercy is essential to God. In (13) and (14), then, *essential* clearly establishes a relation of inclusion between two concepts, which is not the case in (12), in which it denotes a sub-classification of the non-relational noun *joy* (*joy* cannot be paraphrased as being essential to something else). This is why I call the use of *essential* in the first stage of its semantic development non-relational (exemplified in (12)) and in the second stage relational (illustrated in (13) and (14)). It should be noted, however, that relational uses of *essential* do not necessarily involve relational nouns and that the concepts that *essential* can link are not necessarily things (also actions can be linked, as will be shown in the following sections). Moreover, the relationality of *essential* is not restricted to classifier use, since attributive and predicative uses can be -and typically are- relational as well. Finally, as will be discussed in the next section, the type of relationship that *essential* can establish is not necessarily one of inclusion. In the third stage of its semantic development, the relationship at issue is one of necessity or indispensability.

3.2 The properties of potentiality and desirability

The nature of the relationship that *essential* can establish in its previous stage of development serves well as a starting point to explain the emergence of both the semantic property of potentiality and that of necessity in the semantic development of *essential*. I would like to argue that the inclusion relationship characteristic of the second stage of the semantic extension of *essential* involves a sense of necessity. If certain properties or attributes are said to constitute the essence of something, they are necessary to it, for otherwise we might be dealing with just something else. This type of necessity, however, differs from the necessity we experience when something is needed for a certain purpose. In what follows, I would like to propose the terms *intrinsic necessity* for the first type of necessity and *extrinsic necessity* for the second. Importantly, this second type of necessity is potential in meaning and also involves a sense of indispensability or desirability, because when we need something for a particular purpose, it is typically absent, but desired to be on hand. I will argue that

we can posit an extension from the sense of *intrinsic necessity* to that of *extrinsic necessity* in the semantic development of *essential*, in which the property of potentiality plays a key role.

What crucially distinguishes the two types of necessity proposed here is the notion of definition. Intrinsic necessity is defining in nature, whereas extrinsic necessity is not. Example (13), for instance, can be paraphrased as ‘fire is (necessarily) hot’, and (14) as ‘God is (necessarily) merciful’. In these paraphrases, the predicates do not add any new information on the subject, but rather define it. Being hot, for example, is a defining feature of fire. As such, the paraphrases are actually analytical propositions, in which subject and predicate are linked by virtue of their intension. A classic example of such propositions is *Bachelors are unmarried* (Hundt 2003: 350). Again, the predicate (*are unmarried*) does not add any new information on the subject (*bachelors*), but rather defines it. Further, what is regarded as intrinsically necessary to something (e.g., *mercy* as necessary to *God* in (14)) is intrinsically present in it. Note that what is regarded as intrinsically necessary is highly determined by the speaker’s *Weltanschauung*. An ancient Greek speaker, for example, would not see mercy as an essential attribute of god (e.g., Zeus). Finally, as intrinsic necessity is defining, it applies to all instances of the type designated by the head noun to which something is said to be necessary. All fires, for instance, are hot.

Extrinsic necessity, on the contrary, is not defining in nature. Consider (17).

- (17) I tell you my Tale and my *Tale-master, which is **essential** to the begetting of credit to any Relation. (OED 1661)

In (17), ‘my telling you my tale and tale-master’ is not defining of ‘the begetting of credit to any relation’. Thus the subject and the predicate are not linked by virtue of their intension. As such, (17) can be considered to be a synthetic proposition, such as *the fires are small*. Unlike in the proposition *fire is (necessarily) hot*, the subject (*fires*) and the predicate (*are small*) are not linked by virtue of their intension; rather the predicate adds new information on the subject. Further, extrinsic necessity does not really signal an inherent presence, such as the presence of mercy in God in (14), but rather the absence of something that is desirable, such as ‘my telling you my tale

and tale-master' in (17). When something is regarded as extrinsically necessary to someone or something, it is needed or cannot be missed by or for that person or thing. Thus, it is possibly absent, but desirable for a particular purpose, such as 'the begetting of credit to any relation'. Finally, as extrinsic necessity is not defining in nature, it does not necessarily apply to all instances of the type designated by the head noun to which something is said to be essential. As to (17), the necessity of 'my telling you my tale and tale-master' does not necessarily apply to all instances of begetting credit to a relation, but only to those referred to in the discourse. Table 2 below summarizes the main characteristics of the two types of necessity distinguished above.

INTRINSIC NECESSITY	EXTRINSIC NECESSITY
<ul style="list-style-type: none"> • defining • // analytical propositions (true by definition; subject and predicate are linked by virtue of their intension) • what is regarded as necessary to Y is intrinsically present in Y (at least in the speaker's <i>Weltanschauung</i>) → relation of intrinsic inclusion ($X \in Y$) • applies to all instances of the type designated by Y 	<ul style="list-style-type: none"> • non-defining • // synthetic propositions (subject and predicate are not linked by virtue of their intension) • what is regarded as necessary to Y is possibly absent, but desirable for a particular purpose → relation of desirability/indispensability of X to Y • does not necessarily apply to all instances of the type designated by Y

Table 2: Intrinsic vs. extrinsic necessity

The semantic extension from the sense of intrinsic necessity to that of extrinsic necessity is in fact due to the emergence of an element of potentiality in constructions with *essential*. The corpus examples show that the origin of the potential element giving *essential* an extrinsic meaning is twofold: either the element to which something is said to be essential is modified by an evaluative adjective, or it is a potential action. In section 3.2.1, I will investigate the effect of evaluative adjectives on the interpretation of *essential*, and in 3.2.2 I will discuss the case of potential actions. It will be shown that in co-occurrence with a potential element in general, the relationship that *essential* establishes is not one of (intrinsic) inclusion (such as in the second stage of its development), but rather one of indispensability or desirability.

3.2.1 Evaluation

The earliest constructions in which *essential* is used with a meaning of extrinsic necessity involve evaluative elements and appear already in the early 17th century, not much later than its first relational (but non-potential) uses (around 1600). More specifically, in the earliest extrinsic constructions the element to which something is said to be essential is modified by an evaluative adjective, which renders the construction potential in meaning. Indeed, evaluative adjectives signal that the referent of the noun phrase does not constitute all instances of the type designated by the head noun, but only a potential subset of these. Only those instances that meet the criteria designated by the evaluative adjectives can be taken up in the referent set of the whole NP. Moreover, as the evaluative adjectives attribute a non-objective quality to the instances referred to by the NP, the referent set typically differs from person to person. Examples with evaluative elements (underlined in the examples) are given below; example (18) is the first attestation in the OED.

(18) It is an **essential** property of a man truly wise, not to open all the boxes of his bosome. (OED 1618)

(19) Government is **essential** to formed and regular Societies. (OED 1681-86)

In these examples, the nouns to which a particular feature is said to be essential (*man* in (18), *societies* in (19)) are modified by evaluative adjectives. As pointed out above, these indicate that the predication of being essential does not apply to all the instances of the type designated by those nouns, but only to a potential subset of them. In (18), for instance, the property of not opening all the boxes of your bosom is said to be an essential property of *truly wise men* (only), so not of just every man. The property actually serves as a criterion for a man to be taken up in the privileged subset of truly wise men, or, in other words, if you want to be considered a truly wise man, you should not open all the boxes of your bosom. Example (19) can in turn be paraphrased as ‘in order for a society to be considered formed and regular, it should have government, or it should be governed’. Also possible is ‘if you want to make a society formed and regular, you should make it governed’. The conditional paraphrases that involve an agent (*you*) are not really ‘prescriptions’ or ‘regulations’, but rather ‘directives’ or ‘technical norms’ (Von Wright 1971: 9). Such norms do not impose an obligation or render a moral assessment of a modal source (i.e., are not deontic in

meaning), but rather state the necessary condition for an agent to attain a certain end, i.e., they express a situational necessity (dynamic modality). Such ‘directives’ presuppose “a statement to the effect that something is (or is not) a necessary condition of something else”, for which Von Wright proposes the term *anankastic statement* (1971: 10). In such a statement, there is no mention of an agent aiming at a particular end, such as in ‘in order for a society to be considered formed and regular, it should have government, or it should be governed’. From the paraphrases it is clear that elements of potentiality, in these cases evaluative adjectives, bring with them the notion of indispensability or desirability.

The above discussion of the corpus examples already showed the effect evaluative adjectives have on the interpretation of *essential*, but additional evidence can still be adduced. In what follows, I will present an insertion and deletion test with evaluative adjectives, and also compare evaluative adjectives with what are commonly called ‘objective’ adjectives. In general, it will be shown that the extension of the use of *essential* to evaluative contexts implies potential meaning, characteristic of extrinsic necessity. Also, the relevance of the speaker’s *Weltanschauung* will be pointed out, as it may be crucial to the interpretation of expressions without evaluative elements that are ambiguous between an intrinsic and extrinsic reading.

A first piece of further evidence for the effect of evaluative adjectives on the meaning of *essential* can be found in an insertion test. More specifically, an evaluative adjective will be added to an expression which is obviously intrinsic in meaning, such as (20) for instance.

(20) Heat is **essential** to fire.

(21) Heat is **essential** to a good fire.

As we saw already in (13), heat is an essential property of fire; it is a defining feature of fire and intrinsically present in fire. In (21), however, it is argued that heat is not essential to all instances of fire, but only to good fires. Imagine a discussion about outdoor cooking and the qualities of a good fire to prepare pasta, for instance. In such a context, (21) can turn up as it specifies a necessary condition for a good fire, *viz.* that it should be hot. As in (21) heat is argued to be essential only to good instances of

the type fire, *essential* is used in its extrinsic meaning. The conditional paraphrases make the difference between the examples even more clear. (20), for instance, can be paraphrased as ‘if you want to have fire, it should be hot’. An inference in the *modus tollens* then yields ‘if it is not hot, you do not have fire’. The denial of the consequent thus entails the non-existence of fire. (21) can be paraphrased as ‘if you want to make a good fire, you should make it hot’. Here, the denial of the consequent (‘you do not make it hot’) entails that you will not have a good fire. It does not, however, entail the non-existence of fire, i.e. you will still have a fire, but it will not be a good one. These paraphrases thus make clear -one more time- that intrinsic examples pertain to the essence or existence of things, whereas extrinsic examples do not. The insertion test itself has shown that an evaluative adjective alone can make an expression extrinsic in meaning.

Another piece of evidence can be found in the reversal of the test discussed above. More precisely, we could also leave out an evaluative adjective and see whether and how this deletion changes the meaning of *essential*. Below I repeat example (19) as (22), and in (23) I delete the adjectival phrase *formed and regular*.

(22) Government is **essential** to formed and regular Societies. (OED 1681-86)

(23) Government is **essential** to societies.

As I argued above, (22) is extrinsic in meaning, as the predication of being essential does not apply to all the instances of the type society, but only to a potential subset of these, *viz.* those that are formed and regular. What about (23)? I think that here we have an ambiguous case. We can insert the phrase ‘the nature of’ without getting a semantically anomalous interpretation, which points to an intrinsic meaning of *essential* (see section 3.2.2 for more details on this insertion test). If someone argues ‘Government is essential to *the nature of* societies’, we hear a person in whose *Weltanschauung* every type of society, anarchic, democratic or dictatorial, has a form of government. Government thus is intrinsically present in and a defining feature of society. Besides this intrinsic interpretation, however, we could also argue for an extrinsic reading. The insertion of an action nominal can make this clearer. If someone argues ‘Government is essential to *the maintenance of* societies’, we hear a semantically sound utterance as well. The speaker, however, has a different

Weltanschauung, in which not every society necessarily has a form of government, but they should have one in order to remain vigorous. In this interpretation, government is a necessary condition to maintain societies. Apart from acknowledging possible ambiguity and the importance of the speaker's *Weltanschauung* to resolve it, this exercise has also shown that the deletion of evaluative elements can imply an intrinsic reading, on the condition of course that all the criteria for intrinsic meaning summarized in table 2 apply. From both this insertion and deletion test with evaluative adjectives we can conclude that such an adjective alone can force potential meaning and change the nature of the relationship that *essential* establishes from one of intrinsic inclusion to one of indispensability or (extrinsic) necessity.

A third piece of evidence for the finding that evaluative adjectives add potentiality to the meaning of *essential* can be found in a comparison with objective adjectives. According to Quirk et al. (1972: 926), objective adjectives refer to properties that are “(relatively) inherent in the head of the noun phrase, visually observable, [and] objectively recognizable or assessable”, whereas evaluative or subjective adjectives are concerned with “what is relatively a matter of opinion, imposed on the head by the observer, not visually observed and only subjectively assessable”. Halliday proposes a similar distinction between ‘experiential Epithets’ (objective qualitative adjectives) and ‘interpersonal’ ones (subjective qualitative adjectives), and explains the difference between these two types in terms of defining potential (1994: 184). “In definite nominal groups, experiential Epithets aid the identification of the specific instance (e.g., ‘it’s the long train I’m talking about, not the short one’), whereas interpersonal ones do not (e.g., *it’s the mighty train I’m talking about, not the unmighty one’)” (Vandelanotte 2002: 233). However, both admit that the line between ‘objective’ and ‘subjective’ adjectives is not hard and fast (Quirk et al. 1972: 926; Halliday 1994: 184).

As the corpus extractions do not contain any example with an objective adjective modifying the element to which something is said to be essential, I will restrict myself to the insertion test. In (24) I repeat (18) with the objective adjective *bearded* instead of *truly wise*, and in (25) I repeat (23), adding the objective adjective *democratic*.

- (24) It is an **essential** property of a bearded man, not to open all the boxes of his bosom.
- (25) Government is **essential** to democratic societies.

It is important to note that the objective adjectives -like the subjective ones- indicate that the predication of being essential applies only to a particular subset of all the instances of the type referred to by the head noun, but also that -unlike subjective adjectives- the referent set is objectively identifiable, i.e., it does not differ from person to person. Moreover, objective adjectives are liable to form *ad hoc*-types with their head nouns, that is, they “may be ‘promoted’ to principal subclassifying status” (Tucker 1998: 222). In my opinion, objective adjectives are more liable to be regarded as *ad hoc*-classifiers than subjective ones, as the former have some defining potential and refer to a type of instances that are objectively identifiable and assessable. In view of this reasoning, the examples (24) and (25) can arguably still be intrinsic in meaning. In (24), for instance, *a bearded man* actually refers to all the instances of the *ad hoc*-type of bearded men. The predication of being essential thus applies to all the instances of that type. Moreover, according to a particular *Weltanschauung*, the feature of not opening all the boxes of their bosom, or perhaps taciturnity, may be a defining trait of the nature of bearded men. In this (somewhat bizarre) interpretation, *essential* has an intrinsic meaning. However, if the speaker does not share this *Weltanschauung*, the feature is judged desirable for bearded men (bearded men should not open all the boxes of their bosom), which makes *essential* extrinsic in meaning. In (25), the objective adjective *democratic* also functions as a classifier, designating a subtype of the general type designated by the head *society*, forming the *ad hoc*-type of democratic societies. In this *ad hoc*-classifier analysis, the predication of being essential again applies to all the instances of the type. Further, it is not unlikely that the speaker of (25) thinks that a form of government is intrinsically present in and a defining feature of democratic societies. As in (24), we can thus have an intrinsic interpretation in (25) as well. Of course, we could also insert the phrase ‘the maintenance of’, giving ‘Government is essential to *the maintenance of* democratic societies’, which would be extrinsic in meaning for reasons I discussed above. From this insertion exercise, however, we can conclude that objective adjectives do not have exactly the same effect on the interpretation of *essential* as subjective or evaluative adjectives do. Whereas the latter always force a potential meaning (an

extrinsic interpretation), the former do not necessarily do so, since they can form an *ad hoc*-type with their head noun. Of course, we should keep in mind that the distinction between the two types of adjectives is not always that clear, and that the *ad hoc*-type specification is not always that straightforward. This test with objective adjectives has also shown the relevance of the *Weltanschauung* of the speaker, which is crucial to the difference between intrinsic and extrinsic meaning.

3.2.2 Potential action

Potentiality giving rise to extrinsic meaning does not only emerge when the element to which something is said to be essential is modified by an evaluative adjective, but also when it is a potential action. This has already been illustrated in example (17) above, in which the telling of the tale and the talemaster is argued to be essential or necessary to get credit to a relation. Clearly, the action of getting credit is potential: it has not yet been realised, but it can be realised at some point in the future (after the telling of the tale and the talemaster). This example (17), dating from 1661, is the earliest attestation in the OED quotation base that features *essential* in co-occurrence with a potential action. Some later examples are given below.

- (26) As our art is not a divine gift, so neither is it a mechanical trade. Its foundations are laid in solid science. And practice, though **essential** to perfection, can never attain that to which it aims, unless it works under the direction of principle. (CLMET 1720-1780)
- (27) Vegetables again in turn, and during the daytime, exhale and breathe forth that pure dephlogisticated air, so **essential** to the support of animal existence. (OED 1807)

In (27), the pure dephlogisticated air exhaled by vegetables during the daytime is said to be essential to the support of animal existence. Here, the element to which the air is said to be essential is a potential action, expressed by the action nominal *support*. Thus, (27) is typically interpreted as ‘the (presence of) pure air is essential or necessary to support animal existence’. Clearly, it expresses situational necessity (dynamic modality), as it states the necessary condition for an action. In (26), practice is argued to be essential to perfection. Perfection can either be interpreted as an action nominal (the action of making perfect), or as a state (the condition of being perfect),

but in the latter case what is meant here is the reaching of that perfect state. Again, the example expresses situational necessity, as one action (*practising*) is presented as a necessary condition for reaching a particular goal (*perfection*).

In examples (17), (26), and (27), the potential action can be retrieved rather easily from the text or context, without, however, ignoring our knowledge of the extralinguistic world. By way of getting a better grip on how distinguishing between intrinsic and extrinsic examples when the potential action is not that easily retrievable, the following test is proposed, which has already been briefly presented in the previous section. If you can insert the phrase ‘the nature of’ in front of the element to which something is said to be essential, without getting a semantically anomalous interpretation, *essential* will be used in its intrinsic meaning. If, however, the insertion does not really fit the context, it should be replaced by a suitable action nominal. If the insertion of the latter is felicitous, *essential* will be used in its extrinsic meaning. Consider a corpus example in (28) and an invented one in (29).

(28) that lapsabilitie which is **essential** to humanitie. (OED 1682)

(29) that pure dephlogisticated air which is **essential** to humanitie.

If we try to insert ‘the nature of’ in (28) (‘that lapsabilitie which is essential to *the nature of* humanitie’), we get a semantically acceptable expression. Lapsability or the liability or err is said to be intrinsically present in the nature of human beings, of course according to the *Weltanschauung* of the speaker/writer. If we replaced ‘the nature of’ by ‘the survival of’, we would get a semantically more anomalous expression, as if lapsability would be evolutionarily profitable and thus indispensable for the survival of human beings. From this insertion test, we could conclude that in (28), *essential* is used in its intrinsic meaning. In (29), however, the test points to an extrinsic analysis of *essential*. The expression ‘that pure dephlogisticated air which is essential to *the nature of* humanitie’ is not semantically felicitous, as air is not intrinsically present in the nature of human beings. Rather, the presence of air is essential or indispensable to the survival of humanity, as we need it to maintain our cell activities. As I mentioned above, the maintaining of life certainly is a potential action, which forces an extrinsic meaning. Clearly, we use our linguistic and

encyclopaedic knowledge to distinguish between intrinsic and extrinsic meaning, but the insertion test makes the ‘options’ more explicit, which is helpful in case of doubt.

The above discussions have shown that the extension of the use of *essential* to evaluative contexts and contexts of potential action implies a semantic extension of the adjective. More specifically, the relationship that *essential* establishes between the concepts it co-occurs with has extended from one of intrinsic inclusion to one of indispensability or desirability. As already been touched upon, with the emergence of potential meaning *essential* typically expresses situational necessity (dynamic modality). To express deontic modality, however, an utterance needs a modal source in whose view a certain action is assessed as necessary or desirable on the basis of (moral) arguments that are external to the SoA. Such utterances appear in the first half of the 19th century. An example is given below.

- (30) The Anglo-Catholics consider it **essential** to be ordained by bishops receiving their appointment in regular succession from the apostles. (OED 1842)

In (30), the Anglo-Catholics are the modal source who consider it desirable or morally necessary that the bishops (modal agents) ordain them (modal action) (and, for instance, not other ministers of the Church of England). Here, the action that is judged desirable is expressed by an extraposed *to*-clause, but the element to which the action is assessed as essential is not expressed. Indeed, it is hard to express to which entity an action can be considered morally necessary, or, in other words, it is hard to imagine with which entity *essential* links the modal action in this example. This is why I argued (back in section 1) that the link between deontic meaning and relationality is not that straightforward. In rather abstract terms it can be proposed that a modal action is assessed as desirable to the good cause, or to what the modal source considers good or suitable in general, rather than to a specific SoA, which would make the utterance rather dynamic. It should be acknowledged, of course, that there may be ambiguous cases in which both a deontic and a dynamic reading are possible.

3.2.3 Conclusions

In the above subsections we have seen that the extension from the sense of intrinsic necessity to that of extrinsic necessity in the semantic development of *essential* is in fact constituted by the emergence of the properties of potentiality and desirability in constructions with *essential*. Such constructions were shown to be of two types. Either the element to which something (X) is said to be essential (Y) is modified by at least one evaluative adjective (see 3.2.1), or it is a potential action (see 3.2.2). In both patterns of co-occurrence the relation between X and Y that is profiled is one of (extrinsic) necessity or indispensability: either some thing or feature is necessary for the head noun of Y to be taken up in the potential subset designated by the whole Y-NP, for which the criteria are designated by the evaluative adjectives modifying the head of Y, or some means or an action is a necessary condition for a potential action (to reach a certain goal). These paraphrases make clear that in these cases *essential* expresses situational necessity. Deontic utterances, which involve a modal source who assesses the desirability or (moral) necessity for an agent to carry out a certain action, only appear in the 19th century.

To say that in extrinsic expressions the profiled relation between X and Y is one of indispensability does not entail that an inclusion relation between X and Y is necessarily impossible. Especially in evaluative contexts, X may still be a feature or part of the integrated whole Y, as *government* of *societies* in (22). What has changed in such cases is the view on the intrinsic presence of X in Y. Whereas in intrinsic contexts, X is argued to be intrinsically present in Y, as *heat* in *fire* in (13), in extrinsic contexts this intrinsic presence is doubted and considered as possibly absent, but desirable. In contexts of Y as potential actions, however, both the inclusion and the intrinsicness relationship are semantically impossible.

We can thus conclude that in the transition from intrinsic to extrinsic meaning, the properties of potentiality and desirability are added and that of intrinsic presence, but not inclusion, is given up. This change is also reflected in the temporal dimension of *essential* in its two meanings. In its intrinsic meaning, *essential* establishes a relationship of simultaneity. As X is argued to be intrinsically present in Y, they necessarily coincide and thus are simultaneous. In its extrinsic meaning, however, *essential* rather presents X as a necessary condition to Y. As such, Y is always

posterior to X. Either we must first have a certain means or carry out a particular action in order to reach a certain end, or something or someone must first fulfil a particular condition before being taken up in the privileged subset designated by Y. Clearly, the element of potentiality forcing an extrinsic meaning has also changed the temporal relationship that *essential* establishes, viz. from simultaneity to posteriority.

I would like to conclude this section on the semantic development of *essential* with a table that characterizes the three stages of development in terms of the semantic properties of relationality, potentiality and desirability.

stages in the semantic development semantic properties	stage 1: original meaning (from 1340 onwards)	stage 2: intrinsic necessity (from 1600 onwards)	stage 2: extrinsic necessity (from 1618 onwards)
	‘that is such by its true nature’	‘that constitutes the true nature of’	‘that is necessary or indispensable for’
relationality	-	+	+
potentiality	-	-	+
desirability	-	-	+

Table 3: The three stages in the semantic development of *essential*

In the first stage, *essential* does not have relational meaning, as it denotes a sub-classification of only one element and does not link it with another one (on the abstract level of the conceptualisation of the expression as a whole). There is also no potentiality or sense of desirability involved, just like in the second stage. With the meaning of intrinsic necessity emerging through collocation with relational nouns such as *feature* and *property*, however, we do get relational meaning, as one element (X) is said to constitute the true nature or essence of something else (Y). In the third stage, which starts only a few decades after the second one, *essential* also has relational meaning, but the type of relationship has changed, viz. from one of intrinsic inclusion to one of indispensability or desirability. Most importantly, in the third stage the semantic property of potentiality appears, again through patterns of co-occurrence. It was shown that only extrinsic examples can be deontic in meaning. We could thus conclude that only when *essential* has reached the third stage of semantic development (i.e., has acquired the semantic properties of relationality, potentiality and desirability) it can be used in deontic expressions.

3.3 The grammatical development of *essential*

In the detailed discussion of the semantic development of *essential* above, many examples were already given, which could give us an idea of the constructions in which *essential* occurs. It was argued that in the initial stage, *essential* is only used as a classifier, designating a subtype of the general type designated by head noun (like in *essential joy* in (12), see section 3.1). In this section, I will discuss the syntactic environments of *essential* in the second and third stage of its semantic development in a more systematic way. It will be shown that the semantic differences between the stages in terms of the three properties presented in table 3 can be confirmed by differences in the grammatical behaviour of *essential* per stage. Crucially, deontic expressions will only occur in the third stage.

3.3.1 The second stage

In the second stage of the semantic development of *essential*, when it has developed relational meaning, we find a wide variety of types of syntactic constructions in which the adjective appears. In the following, I will discuss them chronologically, starting from the first construction illustrated by (13) and (14) in section 3.1. In (31) I give yet another example.

- (31) One soul hath those three **essentiall** faculties of Vnderstanding, Will, and Memorie, or (as others) of Vegetation, Sense, and Reason. (OED 1613)

Again, *essential* is analysed as a classifier of the head noun, which is typically a relational noun, with the conception of an inclusion relationship as its ground (Langacker 1987a: 217-18). In the examples (13) and (14) above, the head nouns are in turn postmodified by an *of*-PP (e.g., *Heate is the essentiall propertie of fire* (OED 1620)). Here, this relation of possession or inclusion is expressed by the verb *have*. The semantic permeability of the relational nouns was shown to be indicative of the classifier function of *essential* in these constructions (see 3.1 and footnote 6: *a property of the essence of fire* versus *another feature of the importance of the hangover*). Clearly, classifier uses of *essential* are not necessarily non-relational, as we might have expected from example (12) in the first stage. However, *essential* in classifier use will never have potential meaning.

Rather early, *essential* in its intrinsic sense is also used predicatively, complemented by a (*un*)*to*-PP, which signals the element to which the subject is said to be essential. In (32) below, the earliest example in the OED is given, dating from 1628. A later example is rendered in (33).

(32) Such arguments as be **essentiall** vnto the thing, of which they are predicated.
(OED 1628)

(33) Sensibility and a locomotive faculty are **essentiall** to every living creature.
(OED 1656)

In these constructions, the subject of the clause (e.g., *sensibility and a locomotive faculty* in (33)) is presented as intrinsically present in the head noun of the (*un*)*to*-PP (e.g., (*every living*) *creature* in (33)). The (*un*)*to*-PP complement is never left implicit.

Finally, in the second stage of its semantic development, *essential* can also be used with clausal complements, which are invariably accompanied by *to*-PP-complements. The first construction in the OED with clausal complementation dates from 1664 and involves a *to*-PP-complement and an extraposed *to*-clause. In (34), a later example is given. Constructions with *to*-PP-complements and extraposed *that*-clauses appear not much later. The first attestation in the OED is given in (35), dating from 1712.

(34) A creature is a dependent being, that is, it is **essential** to a creature to depend upon the author of its being. (OED 1707)

(35) It is **essential** to a letter that it be directed (...). (OED 1712)

In (34), a creature is defined as being dependent upon the author of its being. The *to*-PP-complement does not only specify to which entity the feature of being dependent is essential, but also contains the logical subject of the extraposed *to*-clause. It is a creature that -by definition- depends upon the author of its being. This depending, however, can hardly be seen as a modal (desirable) action, as a creature is not an intentional agent in the action coming into existence in which it depends upon its author. As there is no modal source involved either, (34) cannot be argued to be a deontic expression. In (35), the feature of being directed or addressed is argued to be

essential to a letter, i.e., if a piece of writing is not clearly addressed, it is not a letter, but just another type of writing. Here, *essential* is complemented by an extraposed *that*-clause, which has a finite in the subjunctive mood (*be*). The *to*-PP-complement specifies to which entity the property encoded by the *that*-clause is essential. Again, the utterance clearly renders a definition of a thing (*viz.* a letter), rather than expressing a deontic assessment.

3.3.2 The third stage

When *essential* has developed the meaning of extrinsic necessity, characterized by the semantic properties of relationality, potentiality and a notion of desirability, it can finally be used in deontic utterances. However, dynamic utterances expressing situational necessity appear earlier than deontic expressions. Below, I will give a chronological overview.

The first grammatical function in which *essential* in its extrinsic meaning appears is as an attribute modifying a head noun, as in (18) above. I repeat (18) below.

- (36) It is an **essentiall** property of a man truly wise, not to open all the boxes of his bosome. (OED 1618)

Here, *essential* attributes the quality of being essential or necessary to the head noun *property*, rather than designating a subtype of the type *property*. Syntactically, as an attribute *essential* can be graded (e.g., *it is a very essential property*, or *being just and reasonable is a more essential property of a man truly wise than not to open all the boxes of his bosom*), and it can also be used in predicative position (e.g., *the property not to open all the boxes of his bosom is essential to a man truly wise*). In fact, in its extrinsic sense *essential* is only marginally used in classifier function (cfr. *necessary*, practically only in *sufficient and necessary conditions*).

Already from halfway the 17th century, *essential* is used in predicative position, with or without a PP-complement. The earliest example of *essential* without a PP-complement in the OED (1651) is given in (37), an example with a *to*-PP-complement is shown in (38), and one with a *for*-PP-complement is given in (39). The *for*-PP-complements appear much later than the *to*-PP-complements (from the 19th century

and halfway the 17th century onwards respectively), and are only used with extrinsic *essential*.

- (37) There is nothing hinders, but that the English may adrogate or adopt, and be adopted (...) the consent of both parties is solely **essentiall**. (OED 1651)
- (38) When a philosopher (...) is obliged to have recourse to some very intricate and refined reflections, and to suppose them **essential** to the production of any passion or emotion, we have reason to be extremely on our guard against so fallacious an hypothesis. (CLMET 1710-1780)
- (39) It is said that the water and the sand of the Tagus are **essential** for the proper tempering of the swords. (CLMET 1780-1850)

In (37), the consent of both parties (potential action) is presented as essential, probably to enforce the law talked about in the text from which this sentence has been excerpted. *Essential* thus expresses a necessity inherent in the English political system, and no deontic assessment. In (38), reflections are considered essential to the production of any passion or emotion. Again, *essential* expresses a dynamic type of meaning (necessity inherent in the SoA of producing passions and emotions), rather than a deontic one. Finally, the same type of modal meaning is expressed in (39), as the use of the water and the sand of the Tagus is presented as a necessary condition for the proper tempering of the swords.

The element to which something is thought to be essential or necessary can also be expressed by a *to*-clause, functioning as an adjunct of goal, instead of a PP-complement. The earliest example in the OED quotation base is given below.

- (40) It wants those striking revolutions, those unexpected discoveries, so **essential** to engage and to detain a spectator. (OED 1780)

Again, the type of modality expressed is dynamic in nature, as the necessity of showing striking revolutions and unexpected discoveries is rendered inherent in the SoA of engaging and detaining the spectator.

Whereas adverbial *to*-clauses always express dynamic necessity, extraposed *to*-clauses can express either dynamic or deontic modality. Deontic utterances appear in the first half of the 19th century, and an example with an extraposed *to*-clause has already been given above (see (30) in section 3.2.2). Deontic meaning can also be expressed by an extraposed *that*-clause, with the finite form in the indicative or subjunctive mood, or with *should*. In (41), an example with an extraposed *that*-clause is given (the finites *take* and *understand* can be either indicative or subjunctive forms). Another construction that is often found is the one illustrated in (42), which has an extraposed *to*-clause (expressing the modal action) and a *for*-PP-complement that expresses for whom the subject (i.e., the *to*-clause) is essential (the beneficiary) and at the same time also the agent of the action encoded by the *to*-clause (i.e., the logical subject of the *to*-infinitive).

- (41) It is **essential** that parents take an interest in their kids' viewing habits and understand what they're watching and have conversations about it. (CB)
- (42) There are occasions when it is **essential** for a political party to show courage and leadership and to stand aside from local factional deals, when the party and the national interest prevail Mr Gray said. (CB)

In conclusion, the three stages that can be distinguished in the semantic development of *essential* are confirmed by grammatical data. The more semantic properties *essential* has acquired, the more constructions are possible. In the first stage of development, *essential* can only be used as a classifier. When it has developed relational meaning, it can also be used in predicative position, always accompanied by a *to*-PP-complement. It can also occur with clausal complements, but then again, the thing or entity to which the subject is said to be essential (intrinsically necessary) needs to be expressed in a *to*-PP-complement. When *essential* has developed extrinsic meaning, however, the entity to which the subject is said to be essential (extrinsically necessary) can be expressed by a *to*-PP-complement, a *for*-PP-complement or it can simply be left implicit. It was also shown that *essential* first occurs in dynamic expressions (expressing a necessity inherent in an SoA or a situation), before it is used in deontic expressions (expressing that a modal source assesses a modal action to be morally necessary or desirable for a modal agent). In the latter, the entity to which the modal action is said to be essential is typically not expressed, but arguably it can be

identified with what the modal source considers good or suitable in general. Clearly, the grammatical development of *essential* corroborates its semantic development, which I have presented in terms of the semantic properties of relationality, potentiality and indispensability or desirability. It has been shown that all of the three properties are necessary to arrive at deontic meaning. In the next section, I will discuss how the adjective *crucial* acquires these properties and eventually can be used as a deontic predicate as well.

4. The semantic development of *crucial*

Crucial is another adjective that was borrowed into English as a non-modal adjective, but acquired deontic meaning in a process of semantic extension. In this section I will show that two stages can be distinguished in its semantic development, more precisely its original meaning of ‘cross-like’ or ‘cross-shaped’ that is not characterized by any of the semantic properties of relationality, potentiality, or desirability, and the meaning that it developed through metaphorical extension, which is characterized by the presence of all of the three semantic properties. In section 4.1, this process of metaphorical extension will be discussed, and in 4.2 I will describe the grammatical development of *crucial*, which will corroborate the semantic findings.

4.1 Metaphorical extension as the driving factor

Like *essential*, *crucial* is not of Germanic, but rather of Romance origin. According to the etymology given in the OED, it was borrowed from French into English in the early 18th century with the meaning of ‘cross-shaped’ or ‘in the form of a cross’ (note that *essential*, however, was borrowed in the 14th century already). The French word *crucial* itself is formed on the Latin noun *crux*, *crucem* ‘cross’ and appeared in French medical texts in the 16th century (e.g., in *section cruciale*), also in the sense of ‘cross-shaped’ (Malgaigne 1840-41, as cited in TLF VI 559a). The first attestations of *crucial* in the OED are given below. Clearly, they are also taken from medical texts.

- (43) **Crucial** *Incision*, the cutting or lancing of an Impostume or Swelling cross~wise. (OED 1706)
- (44) The bursal and **crucial** ligaments were in their natural order. (OED 1751)

In both (43) and (44), *crucial* functions as a classifier. In (43), it indicates a specific type of incision, namely one in the form of a cross, as opposed to a linear incision. As such, *crucial* designates a subtype of the general type of incision, rather than assigning a gradable quality to the instance referred to by the NP. In (44), *crucial* denotes a sub-classification of *ligaments*: specifically, these are the two ligaments in the knee-joint, which cross each other in the form of a Saint Andrew's cross and connect the femur and tibia, as opposed to the bursal ligaments, which cross the bursa (OED). Also in this case, *crucial* indicates a subtype of the type of the head noun, and does not attribute a quality to the NP referent. It should be noted as well that in the OED no predicative or graded uses of *crucial* in its original meaning occur. It is clear that *crucial* in the sense of 'cross-shaped' or 'cross-like' is non-relational, as it does not link two concepts (it rather denotes a sub-classification of only one entity), non-potential, as it does not involve a potential event or the potential presence of an entity, and that it does not involve a notion of indispensability or desirability (but merely an indication of the shape of an entity).

Arguably, *crucial* developed the three semantic properties necessary for deontic meaning in a process of metaphorical projection. It is commonly accepted that the basis of this metaphorical extension was laid in the work of Francis Bacon (1561-1626) (OED; FEW II2 1382b; TLF VI 559; Klein 1971: 178). In his very influential *Novum Organum* (1620), written in Latin, Bacon coins the phrase *instantia crucis* 'crucial instance', which he explains as a metaphor derived from crosses that are placed at bifurcations of the road and indicate where each way will lead. Crucial instances are places where the scientist or thinker in general has to make a decision, as much as finger-posts are places where the traveller has to decide which way to go⁷ (the Latin word *crux* at that time had acquired the meaning of 'a guidepost that gives directions at a place where one road becomes two'⁸ (OED; FEW II2 1380a)). Bacon thus maps the more concrete domain of travelling onto the more abstract domain of thinking. Robert Boyle (1627-1691) and Isaac Newton (1642-1727) built on this

⁷ Arguably, this metaphor has a metonymical base, as the instances in question are not cross-like, but rather situated at crosses posted at bifurcations of the road. This relation of spatial contiguity thus serves as the base for the metaphor, which is in line with Barcelona's claim that the target and/or the source of a potential metaphor "must be *understood or perspectivized* metonymically for the metaphor to be possible" (2000: 31; italics original).

⁸ The OED mentions that occasionally, the intended sense of *crucial* seems to be 'of the nature of a *crux* or special difficulty'.

metaphor and used the term *experimentum crucis* to refer to the experiment performed to decide between two rival hypotheses (OED). Although the studies of the scientists mentioned were written already in the 17th or early 18th century (some in Latin), the specific phrases with the adjective *crucial* appear in English only in the 19th century. The two earliest examples are given in (45) and (46) below. However, the Latin phrases appeared as such in earlier scientific or philosophical English writings (e.g., *The gradual removal of these suspicions at length led me to the Experimentum crucis* (Newton 1672, OED); *The Experimentum crucis or that Experiment, which points out the Way we should follow, in any Doubt or Ambiguity* (Hume 1751, OED)).

- (45) What Bacon terms **crucial** instances, which are phenomena brought forward to decide between two causes, each having the same analogies in its favour. (OED 1830)
- (46) **Crucial** experiments for the verification of his theory. (OED 1869)

The examples already indicate that *crucial* in this metaphorical sense has relational and potential meaning. Instances are termed crucial when they are brought forward to decide between two causes, i.e., they are crucial to a decision between two hypotheses (45). In (46), experiments are characterized as crucial for the verification of the theory. *Crucial* thus establishes a relation of decisive influence between two concepts: the instances or experiments are decisive of (the potential action of) the resolution of the intellectual crisis. This notion of decisiveness arguably involves a notion of extrinsic necessity or indispensability as well. The experiments in (46), for instance, are necessary to verify the theory, i.e., they are indispensable to the resolution of the crisis. Thus for *crucial*, the process of metaphorical extension can be considered as the driving factor of the acquisition of the semantic properties of relationality, potentiality and indispensability or desirability.

Crucial is found in deontic expressions only very recently. In fact, deontic utterances with *crucial* were only found in the synchronic *Cobuild Corpus*. Before it occurs in such expressions, *crucial* is used to modify a variety of concepts, sometimes with a little difference in meaning. Very often, for instance, moments or periods of time are said to be crucial, as illustrated in (47) and (48).

- (47) Showing where, at some **crucial** point of the story, fraud or delusion might enter. (OED 1874)
- (48) The absence in the infant's life of a mother or effective *mother-substitute during the **crucial** period from about one to three years old. (OED 1943)

Crucial moments or periods are important and decisive of the following course of events, but they do not involve the notion of indispensability or desirability. Rather, in such examples *crucial* denotes a less strong form of necessity, more precisely the notion of importance. The same goes for *crucial* in the following examples, in which it modifies a particular event, a matter of opinion, or a fact ((49) to (51) respectively).

- (49) The England Supporters Band - whose own World Cup single The Great Escape is in the top 40 - will be blasting out Don't Cry For Me, Argentina during England's **crucial** match. (CB)
- (50) In the second edition footnotes the reader of the Logical Studies learns that Husserl has changed his views on this **crucial** point, and has come to accept definitely Natorp's Pure Ego. (OED 1925)
- (51) "Ah! He's married: that's **crucial**," I said, daffingly. (OED 1902)

Again, the notion of indispensability or desirability is not involved when *crucial* modifies a football match (49), a part of a theory (50), or the fact of being married (51). The sense of decisive importance or determining influence, however, remains present in each of the examples. The elements to which the various concepts are said to be crucial or very important are not expressed, but can be inferred from the context and are possibly potential in nature (e.g., the win of the World Cup in (49)). These examples thus show that the property of indispensability or desirability might be absent in the metaphorized meaning of *crucial*.

However, when the presence or use of something is considered crucial to a potential action, or when it is an action itself that is considered crucial, the sense of desirability or indispensability clearly is present. Examples are given below.

- (52) These results show that fertilizer is **crucial** for satisfactory growth, particularly slow acting types such as John Innes base. (OED 1970)

- (53) With the scourge of illegal narcotics infecting every part of the world, it is **crucial** to educate young people about the dangers of drugs. (CB)

In (52), (the use of) fertilizer is shown to be crucial to satisfactory growth, which can be paraphrased as ‘the use of fertilizer is decisive of or (extrinsically) necessary to satisfactory growth’. Clearly, the semantic properties of relationality, potentiality and desirability are present, but the expression is not deontic, but rather dynamic in meaning. The use of fertilizer is not really assessed as morally necessary or desirable, but rather shown to be a necessary condition to attain the goal of satisfactory growth. In (53), however, *crucial* does express deontic meaning. Here, it is argued that it is desirable or morally necessary to educate young people about the dangers of drugs. The modal source is the speaker, and the modal agent is arguably not only the actual hearer(s), but rather a generic hearer. Like in the case of *essential*, the element to which the modal action is considered crucial is not expressed, but it can be identified with what the modal source considers good or suitable in general.

In conclusion, two stages have been distinguished in the semantic development of the French loan *crucial*, namely its original rather concrete meaning of ‘cross-shaped’ or ‘cross-like’ (from the early 18th century onwards), and the more abstract metaphorized meaning of ‘decisive’ (from the 1830’ onwards). Indeed, the mechanism that has driven this semantic extension is metaphorical projection. In the influential work of Francis Bacon (1620), the more concrete domain of travelling is mapped onto the more abstract domain of thinking, in that *crucial instances* are characterized as places where the thinker has to decide between two rival hypotheses, just like *crucies* or finger-posts are places where the traveller has to decide which way to go. Through this metaphorical extension, *crucial* was shown to acquire the semantic properties of relationality, potentiality and desirability, with the latter property most explicitly present when something is said to be crucial to a potential action, or when it is an action itself that is said to be crucial (i.e., of decisive importance). Like *essential*, *crucial* can, when it has acquired the three semantic properties at issue, also be used in dynamic utterances expressing necessity inherent in a situation. Deontic utterances, however, require the presence of a modal source assessing an action carried out by an agent as desirable on SoA-external (moral) grounds. Such expressions with *crucial* only appear in Present-Day English.

4.2 The grammatical development of *crucial*

As in the development of *crucial*, the acquisition of the semantic properties of relationality, potentiality and desirability happens rather abruptly through only one mechanism of change (i.e., metaphorical projection)⁹, the grammatical differences between the stages of development are much more significant than in the case of *essential*. The initial stage of *crucial*, however, is similar to that of *essential* in terms of grammatical behaviour, as *crucial* in the sense of ‘cross-like’ or ‘cross-shaped’ is only found in classifier use (see section 4.1 above). In the second stage of semantic development, when *crucial* has developed the properties of relationality, potentiality and desirability, it is used in many more grammatical constructions, which shows that the metaphorical projection clearly has had grammatical corollaries. In the following, I will give a chronological overview of the constructions in which *crucial* is used in its metaphorized meaning.

In the earliest attestation in the OED of *crucial* in its meaning of ‘decisive’, it is arguably used as a classifier as well. In (54), which repeats (45), *crucial instances* are presented as a term which is defined in the relative clause. Again, *crucial* indicates the subtype of the general type designated by the head (*instances*). To what other type of instances crucial ones are opposed, however, is not that clear as in the previous examples of *crucial* as a classifier (just non-crucial instances?).

- (54) What Bacon terms **crucial** instances, which are phenomena brought forward to decide between two causes, (...). (OED 1830)

Crucial is also very often used as an attribute, for instance to characterize a moment or period of time as decisive, as illustrated in (55). The earliest example in the OED was already given above (see (47) dating from 1874). In this sense, it can also be used predicatively, as can be seen in (56).

- (55) That's the **crucial** time for me, like the first month of a baby. (OED 1957)

- (56) With only a decade left, the next 12 months are **crucial**. (CB)

⁹ More in general, abrupt changes are typically motivated by metaphorical projections and processes of analogy (Bisang 1998), whereas gradual changes have been typically associated with metonymical mechanisms, such as invited inferencing (Traugott and König 1991).

Like *essential* in its extrinsic meaning, *crucial* in its metaphorized sense can also be used predicatively with a *to*-PP-complement (exemplified in (57)) or a *for*-PP-complement (illustrated in (58)), which express the element on which the subject will have a decisive impact or for which element the subject is (extrinsically) necessary. These two examples are the earliest attestations of the PP-complements, and appear around the same time, which was clearly not the case in the grammatical development of *essential* (see section 3.3.2 above).

(57) Dr. Fogel has cliometrically calculated that railroads were not as **crucial** to industrial growth as the traditional wisdom has pictured them. (OED 1969)

(58) The distinction between competence and performance or language and speech is quite **crucial** for understanding at least three goals related to linguistic descriptions proper. (OED 1964)

In (57), the result is given of a study that has investigated the influence of railroads on industrial growth, and the conclusion is that these were not that decisive of or necessary to the growth as commonly thought. In (58), (understanding) the distinction between two concepts is thought necessary for understanding other concepts. As one (implied) action is presented as a necessary condition for another action, the utterance in (58) expresses a necessity inherent in an SoA (dynamic modality), rather than deontic necessity.

Crucial, however, can also occur with clausal complementation in exactly the same constructions as *essential* in its third stage. These can express either dynamic or deontic meaning. A few constructions are illustrated below.

(59) Brother Wahad's involvement in the Black Revolution movement of the 1960s (...) has led him to adopt a position believing it is **crucial** for activists to participate in the debate concerning the popular cultural expressions presently being disseminated throughout the world as black culture. (CB)

(60) It is **crucial** that the countryside gets proper recognition and support from all political parties. (CB)

(61) It is **crucial** that the blocking device, (...), is deposited at this point to ensure that the tubes are rendered impassable. (CB)

(59) and (60) are deontic expressions, whereas (61) expresses dynamic necessity. In (61), the blocking device has to be deposited at a certain point in order to ensure that the tubes are rendered impassable. The action of depositing is thus thought necessary on SoA-internal grounds, that is, for the proper blocking of the fallopian tubes (in a sterilization operation). In (59) and (60), however, actions are thought desirable or (morally) necessary on SoA-external grounds. In (59), the he-person (modal source) believes that activists (agents) should participate in the debate concerning ‘black culture’ (modal action). Note that the *for*-PP-complement expresses the beneficiary of the predication of being crucial, but at the same also the logical subject of the extraposed *to*-clause. In (60), the speaker/writer (David Steel, modal source) argues that it is desirable or morally necessary that all political parties (agents) give the countryside proper recognition and support (modal action). Like in (61), *crucial* is complemented by an extraposed *that*-clause with a finite in the indicative mood. (60) and (61) thus show that the presence of the three semantic properties discussed is not enough to distinguish between dynamic and deontic meaning, nor are grammatical constructions. Therefore, it is the context that has to provide a decisive answer about whether a modal source is involved that judges an action desirable on the basis of SoA-external arguments. Apart from the constructions illustrated in (59) and (60), the *Cobuild Corpus* also contains deontic expressions with a subjunctive finite clause (e.g., *Thus, it is **crucial** that the parent exit treatment with strategies for adapting to future change* (CB)), as well as examples with a *to*-PP-complement and an extraposed *to*-clause (e.g., *It is **crucial** to us to play in such an important competition* (CB)). Constructions with an extraposed clausal complement and a subclause expressing a goal, however, are typically dynamic in meaning, as the clausal complement is considered necessary relative to the goal expressed in the subclause (e.g., *To punch the ball, it is **crucial** to set up correctly* (CB)).

From the discussion of the semantic and grammatical development of *crucial* above, we can conclude that besides patterns of co-occurrence (as we saw for *essential*) also metaphorical projection can be a driving factor in the acquisition of the semantic properties of relationality, potentiality and desirability. In its original meaning of

‘cross-like’, *crucial* does not yet have these three properties, and it actually appears in only one grammatical function, *viz.* as a classifier. After the metaphorical projection in which the domain of travelling is mapped onto that of thinking (cfr. Bacon 1620), *crucial* has acquired the three semantic properties and, like *essential* in the third stage of its semantic development (expressing extrinsic necessity), allows for many more grammatical constructions. It can be used as a classifier, or occur in attributive or in predicative position. In the latter case it can take a *for*- or a *to*-PP-complement. When the element to which something is said to be crucial is not expressed, however, the sense of indispensability is often too strong to paraphrase *crucial*. In such expressions, its meaning comes close to that of ‘very important’. As to clausal complements, the same constructions can be used as with *essential* in its final stage, and they can express either dynamic or deontic meaning as well. When a construction with a clausal complement is modified by a subclause expressing a goal, however, the meaning expressed will typically be one of dynamic situational necessity. For deontic meaning, in contrast, the action involved has to be assessed on SoA-external (moral) grounds by a modal source. Again, it has become clear that the presence or absence of the semantic properties focused on has grammatical consequences, or, that the grammatical data may serve as evidence for the semantic development proposed. In the next and last descriptive section, we will discuss how the native adjective *needful* developed to express roughly the same meaning as *essential* and *crucial* in their final stage of semantic development. Like in the case of *crucial*, only two stages will be distinguished, but its semantic extension is arguably driven by yet another factor than patterns of co-occurrence or metaphorical projection.

5. The semantic development of *needful*

The last adjective that will be dealt with in this paper is *needful*. Unlike the two adjectives discussed above, *needful* is a native Germanic word. However, its original meaning is also non-modal in nature, and it underwent a semantic development as well, so that it can be used in deontic utterances (already in the Middle English period). As in the case of *crucial*, two semantic stages can be distinguished: the initial one lacks the three semantic properties of relationality, potentiality, and desirability, whereas the second one is characterized by the presence of all three of them. More specifically, in the first stage, *needful* (‘poor’) is said of persons, and in the second one, it is said of things or actions (‘necessary’, ‘indispensable’). In section 5.1, I will

take a closer look at this semantic development, and 5.2 will be devoted to the grammatical development of *needful* to investigate the grammatical effects of its semantic extension.

5.1 From senser to phenomenon

The adjective *needful* is actually a complex word form, consisting of the noun *need* ('situation of difficulty or distress', 'extreme poverty', or 'necessity arising from the facts or circumstances of the case' (OED)) and the adjective *full*, which was often appended to nouns in Old English to form adjectives. As the OED states, the etymological sense of the adjective *full* ('full of') "is usually somewhat weakened, so that the words [i.e., the compositions with *full*] may be rendered 'having', 'characterized by' (the attribute denoted by the noun)". Indeed, in its original sense, *needful* is said of persons who are having need, or that are necessitous¹⁰. It is often used absolutely, as in the earliest attestations in the OED, dating from the 12th century.

(62) Heo is (...) mancenne hiht and hope, richtwisen strenhþe, and **niedfulle** frouer. (*He is the delight and hope of mankind, the strength of the righteous, and the comfort of the needful.*) (OED a1175)

(63) Gief þe **nedfulle**, help þe haelease. (*Give to the needful, help the havenless*) (OED c1200)

It is clear that in this meaning of 'poor', 'needy', or 'necessitous', *needful* never links two concepts (i.e., is non-relational: one cannot be needful to something else¹¹). Neither does it involve a potential action or state (if you are said to be poor, this poverty is not something potential, but actual at the moment of speech), or the notion of desirability. Obviously, in its original meaning, *needful* refers to persons who need basic material things. If we relate the adjective to the process 'to need', we can thus

¹⁰ The adjective *needful* that is discussed here is based on the noun *niēd* ('violence', 'necessity', 'poverty'), and should not be confused with the adjective †*neodful*, that is based on the noun *néod* ('zeal', 'desire', 'pleasure') and that means 'earnest', 'eager' (e.g., *Þus neodful he was ... to ontenden his luue in his leoues heorte* (So **eager** he was to kindle his love in his beloved's heart) (OED 1225)). Only two examples of the latter adjective can be found in the OED.

¹¹ From the 15th century onwards, *needful* may be complemented by *of*-PP-complements ('standing in need of something'), like in *A place... full nedefull of grete reparation* (OED 1432), but the subjects of such constructions are invariably inanimate.

argue that *needful* in its first stage is linked with the senser of this process (Halliday 1994: 112-119, 174).

In the second stage of its semantic development, however, *needful* does not refer to persons who are affected by need or necessity (the sensors of the process ‘to need’), but rather to things that are needed, or, in Halliday’s terms, the ‘phenomena’ of the process ‘to need’¹². Examples of this phenomenon meaning of *needful* (‘that is needed or required; that cannot be done without’) appear already halfway the 14th century and are illustrated below.

- (64) Whet, wyne, and oile (...) are mast **nedful** til mannys oise. (*Whet, wine and oil are most needful to many uses*) (*use* in the sense of ‘the fact or quality of serving the needs or ends of a person or persons’ (OED-*use*))(OED 1340)
- (65) **Nedful** thing to þe keching. (*Needful thing to the kitchen*) (OED 1375)

In these examples it is things that are said to be needful, and we also know to what entity or end they are so. In (64) whet, wine and oil are said to be needful or indispensable to many purposes, and in (65), the thing involved is thought needful or indispensable to the kitchen (which stands metonymically for the action of preparing food). Clearly, this phenomenon meaning of *needful* is relational (the things are said to be needful to many purposes in general in (64) and to a particular purpose in (65); *needful* thus links two types of concepts), and also potential, as *needful* only indicates that the things are necessary, but not whether they are already on hand; they are possibly absent, but then they are desirable. As such, the phenomenon meaning also involves the notion of indispensability or desirability. Thus, with the phenomenon meaning of *needful* the three semantic properties crucial to deontic meaning have been acquired.

Not only can things be said to be indispensable, needfulness can also be predicated of states and actions halfway the 14th century. So, already in the Middle English period, *needful* occurs in deontic and dynamic expressions. Consider the following examples.

¹² In his classification of processes, Halliday distinguishes three main types, viz. material, mental, and relational processes, each of them being characterized by specific types of participants or semantic roles (1994: 106-175). The process of *need* typically is a mental process, in which a senser (a “conscious thing”) is affected by the lack of something (the phenomenon) (1994: 173-74).

- (66) **Nedeful** it es, þat sorow war als mykel and na les For ilka syn and ilka trespass, Als luf and delyte in syn was. (*It is needful that sorrow were as much and not less for each sin and each trespass as there was love and delight in sin.*) (HC 1350-1420; OED 1340)
- (67) Vnto these men itt is **nedefulle** and spedefulle to vse the werkis of Actife liffe als besili as þei may. (*To these men it is needful and suitable to perform the works/occupations of active life as busily as they may.*) (OED 1340)
- (68) The sholders ben **nedefull** to bynde and cheyne togyders the bones of the breste. (*The shoulders are needful to bind and chain the bones of the breast together.*) (OED 1398)

In (66) it is a particular state that is needed or required, whereas (67) and (68) involve actions. The state expressed in (66), which is a quote from Saint Augustine, can be paraphrased as follows: the sinner should feel as much sorrow or deep regret for each sin as s/he had delight in committing it. As such, the state is paraphrased as an action. Clearly we have a deontic expression here, with Saint Augustine as the modal source and the sinner in general as modal agent. The action of feeling as much sorrow for each sin as they had delight in committing it is assessed as highly desirable or morally necessary on SoA-external grounds. (67) is deontic in meaning as well. Here Richard Rolle of Hampole, a Yorkshire hermit (the source), writes what he thinks as desirable or morally necessary for a specific group of men, namely those that are worldly and live an active life (as opposed to a contemplative life) (the agents). In his view, these men should perform the occupations of active life as busily as they may (modal action). (Note that the *unto*-PP expresses to whom the action is needful (the beneficiary), and at the same time also the logical subject of the *to*-clause.) In (68), in contrast, *needful* expresses dynamic meaning, as (the presence of) shoulders (is) are required to hold the bones of the breast together. Shoulders are thus presented as necessary on purely physical, SoA-internal grounds. (Note that the *to*-clause does not function as a complement but rather an adjunct of goal.) As was shown in the examples, *needful* can express dynamic and deontic meaning as soon as it has acquired the semantic properties of relationality, potentiality and desirability.

From the above discussion, it is clear that *needful* underwent a semantic extension in the 14th century, but no answer has been given yet to the question of how this extension actually took place, or, in other words, what its driving factors are. The change in perspective from the semantic role of the senser of the need (in the initial stage) to that of the phenomenon of the need (in the second stage) cannot be accounted for by metaphorical projection, which we saw at work in the semantic development of *crucial*. Rather, the driving factors identified in the semantic extension of *essential*, viz. patterns of co-occurrence, may be invoked for the extension of *needful*. Indeed, until the mid-14th century, *needful* only co-occurs with (animate) human subjects or it is used absolutely (*the needful*), often in combination with other adjectives that also indicate the poverty of people (e.g., *þe nedfulle, þe hauelease* (OED c1200); *to neodfule and to poure* (OED a1225); *in neodfule & in nakede* (OED a1225). From halfway the 14th century, however, *needful* appears in co-occurrence with inanimate entities, such as things, actions or states, which is illustrated in the examples (64) to (68) above. From the period 1250-1340 that covers the transition period from the senser meaning to the phenomenon meaning, however, only one example is available in the OED quotation base (with senser meaning), and none in the *Helsinki Corpus*. With just one example dating from the crucial period between the two stages distinguishable, it is rather difficult to find out how exactly a phenomenon meaning became possible for *needful*.

However, an explanation can be found in the semantics of the noun *need* on which *needful* is based. In fact, *need* not only means ‘a situation of difficulty or distress’, or ‘extreme poverty or indigence’, on which the initial meaning of *needful* is based, but also ‘necessity (arising from the circumstances of the case)’, which is clearly the base of the phenomenon meaning. Both meanings already occur in the Old English period (OED). It could be argued that in the semantic extension from senser to phenomenon meaning, another sense of the noun *need* became focused on. Moreover, similar semantic extensions are attested for two other West-Germanic languages, Dutch and German, and also for French. The Middle Dutch adjective *nodich*, based on the noun *nood/noot* (note that it has the same stem as the English noun *niċd* ‘need’), also meant both ‘needy’ or ‘destitute’ and ‘necessary’, with the senser meaning being attested earlier than the phenomenon meaning (Verwijs and Verdam 1969 [1899]: 2477-78). In Present-Day Dutch, only the phenomenon meaning has been preserved (*nodig*)

(WNT-*noodig*). The same goes for the German adjective *nötig* ('necessary', '*nodig*'), based on the noun *nôt* (note again the same stem), which in Middle High German (*nôtec*, *nætec*) also had both the senser and phenomenon meaning (Lexer 1876: 107). Finally, the Old French adjective *besoignos* has been first attested with the senser meaning as well ('who has need'), and later with the phenomenon meaning ('that is needed or required', 'indispensable') (FEW XVII 278a; pc Willy Van Hoecke). The noun it is based on, *besoin*, had actually the same polysemous senses as *need* (and also *nood* and *not*) at that time (TLF IV 424b-426b). Unlike its Dutch and German counterparts, *besogneux* has preserved only its senser meaning ('needy') in Present-Day French (TLF IV 424). In English, both meanings are still used, but the senser meaning has become rather marginal. The similar cases of polysemy in genetically or areally proximate languages discussed above thus strengthen the argument that an explanation for the semantic extension in *needful* can be found in the concept of *need*. As such, the patterns of co-occurrence previously mentioned arguably serve as evidence for the extension in meaning, rather than as the actual driving mechanism.

In conclusion, the semantic development of *needful* presents us yet another pathway to deontic meaning than the ones of *essential* and *crucial*. In its original meaning, *needful* is not characterized by any of the semantic properties of relationality, potentiality, or desirability. It was argued that, in its initial stage meaning of 'poor', 'needy' *needful* refers to the semantic role of the senser of the need. From the mid-14th century onwards, *needful* appears in co-occurrence with things, actions, or states that are needed. As such, it refers rather to the phenomenon of the need, and develops the properties of relationality, potentiality, and desirability. It was hypothesised that this semantic extension evidenced in a change in patterns of co-occurrence and also attested in genetically or areally proximate languages could be explained by the polysemous meaning of the noun *need*. Further, it was shown that the earliest dynamic and deontic uses also date from the 14th century. As was the case with *essential* and *crucial*, in the deontic expressions the element to which the action is assessed needful is left implicit, but again it can be described as what the modal source considers good or appropriate in general. In the next section we will discuss whether the grammatical development of *needful* corroborates these semantic findings.

5.2 The grammatical development of *needful*

For the third and last time, we will have a look at the grammatical constructions and complementation patterns in which the adjective under investigation occurs. Does the acquisition of semantic properties again entail an extension of the constructional possibilities? In the following, I will discuss the grammatical data of the two stages distinguished in the semantic development (5.1).

As was illustrated above (see examples (62) and (63)), *needful* in its original meaning of ‘poor’ or ‘necessitous’ is most often used absolutely. However, it can also occur in attributive, predicative or appositive position, but it is never complemented by a PP, neither by a clause. In (69), an example is given of *needful* in attributive use.

- (69) A **nedful** wreche here am i hidd. (*A needful wretch, here I am hidden*) (OED 1300)

Needful in its sencer use can thus be used to function as a noun, when used absolutely, or to modify nouns that denote human beings. Again, it is the case that as long as the adjective is non-relational in meaning, it does not allow any complementation pattern.

In its phenomenon meaning, *needful* has acquired the meaning of ‘necessary’, ‘indispensable’, and thus also the semantic properties of relationality, potentiality and desirability. Many types of complementation patterns occur already halfway the 14th century, which makes it difficult to posit a diachronic development. Therefore, I will start with all the constructions that were used in the latter half of the 14th century, and then move on to later constructions.

Firstly, *needful* is found with PP-complements which indicate the person or thing for which something is necessary. These PP-complements can be headed by *till* (like in (64) above), *to* (as shown in (70) below), or *for* (as illustrated in (71) below). The examples given are the earliest attestations of the PP-complements, so they appear around the same time (as was the case with *crucial*, but not with *essential*).

- (70) Shrift to God is put bihynde ... but privey shrift newe foundun is autorisid as **nedeful** to soulis heele. (*Confession to God is put behind, but newly*

discovered private confession is authorized as needful to the soul's heal.)
(OED 1380)

- (71) For þou þese to [= two] craftis nemlid were michil more **needful** in þe elde lawe (*For you these two crafts named were much more needful in the old law*) (OED 1396-7)

In (70), private confession is said to be indispensable to the soul's heal, and in (71), two crafts are argued to be more needful for you in the old testament (than in the new testament). The PP-complements thus express for which goal (70) or for whom (71) the (inanimate) subject is needful or necessary. In these examples, *needful* therefore has relational meaning, as it links two concepts.

Secondly, in the 14th century *needful* is also complemented by finite and non-finite clauses, just like *essential* and *crucial* in their final stage of semantic development. As we already saw in example (66), *needful* can be complemented by an extraposed *that*-clause with a subjunctive finite, expressing deontic meaning. In (67), *needful* appeared with an *unto*-PP-complement and an extraposed *to*-clause, also with deontic meaning. Other constructions that can express deontic meaning are illustrated below.

- (72) It ys **needfull** ...[to] chese a sotell man, þat hauyn most stalworth tokenyng, and most rechand argument. (*It is needful to choose a subtle man, that have [sic] [a] most stalworth representation and [a] most far-reaching argument*) (OED c1400)
- (73) It is **needful** for them to be exercised with sundry scholepoints. (OED 1571)
- (74) It is not **nedefull** that I sholde make a longe sermonde. (OED a1533)

In (72), the speaker/writer estimates it is desirable to choose a subtle man, with the modal action expressed by an extraposed *to*-clause. In (73), we have a similar construction as in (67), but here the beneficiary of the main predicate (and the logical subject of the extraposed *to*-clause) is expressed by a *for*-PP, and not an (*un*)*to*-PP. Such constructions with a *for*-PP appear only in the 16th century. Here, Calvin (the speaker/writer and modal source) assesses it desirable that some agents should exercise 'them' with sundry school-points. In (74), we have the earliest example in the OED (1533) with *should* in the extraposed *that*-clause. Arguably, this utterance is

deontic in meaning, but we have little context to affirm this analysis. As the examples below also show, grammatical constructions cannot give a decisive answer about the type of modal meaning involved. In (75), for instance, *needful* is used in exactly the same grammatical construction as in (73), but the meaning expressed is one of dynamic situational necessity, rather than deontic necessity (they are forced to make good defence because they fight against the flower ('pick') of chivalry and squiry). In (76), we have the same construction as in (74), but again it expresses dynamic necessity rather than deontic meaning (the reaching of a certain concentration of thyroid secretion is necessary for purely physical reasons related to the hormone metabolism (CB)).

- (75) It was **nedefull** for them within to make good defence, for against them was the floure of chyvalry and squyry. (OED 1525)
- (76) It is **needful**, not merely that some thyroid secretion should be circulating in the body, but that it should reach a certain definite concentration, a certain threshold value. (OED 1926)

From the above discussion of the grammatical development of *needful*, we can draw roughly similar conclusions as we did for those of *essential* and *crucial*. Again, the more semantic properties have been acquired, the more constructions *needful* can be used in, and complementation is only possible when the adjective has acquired relational meaning. Indeed, in its initial sensor meaning, *needful* can only occur in attributive, appositive or predicative position (or be used absolutely), whereas in its phenomenon meaning, having developed relational and potential meaning and involving desirability, it can take many types of complements. It was also noted that with those semantic properties, *needful* can express either situational or deontic necessity, and that the grammatical construction used is not decisive of the meaning expressed. Rather, deontic expressions involve a modal source that assesses an action desirable on SoA-external grounds, whereas dynamic expressions merely give an indication of a necessity inherent in the SoA or situation. Finally, it could be seen that the deontic utterances presented do not express the element to which the modal action is assessed desirable, which we also saw in the cases of *essential* and *crucial*. Again, I would like to argue that in such expressions the modal actions are estimated as

desirable or morally necessary in relation to what the modal source considers as good or suitable in general.

With the description of the semantic and grammatical development of the native adjective *needful*, we have sketched a third path to deontic meaning. In its original meaning, *needful* is said of persons and it attributes them the quality of being poor or necessitous. Clearly, this senser meaning is based on the sense of the noun *need* as ‘condition of distress’ or ‘extreme poverty’. As argued above, this meaning is non-relational and non-potential, and does not involve a notion of desirability. From the second half of the 14th century onwards, *needful* appears in co-occurrence with inanimate things, states and actions, rather than human beings, and it attributes them the quality of being needed or necessary. This phenomenon meaning is based on another meaning of *need*, viz. that of ‘necessity’ or ‘indispensability’. It was noted that a similar polysemy has also been attested for semantically cognate adjectives in Middle Dutch, Middle High German and Old French. In these languages, the senser meaning always precedes the phenomenon meaning as well. With this phenomenon sense, *needful* has developed the semantic properties of relationality, potentiality and desirability, which is reflected in the enhanced availability of grammatical constructions it can occur in. These are roughly the same as for *essential* and *crucial* in their final stage of development. However, whereas the latter two adjectives are first used in dynamic utterances expressing situational necessity, *needful* can be used in either dynamic or deontic expressions around the same time. In the concluding section, I will focus on these and other parallels and differences in the three pathways to deontic meaning discussed in the descriptive sections and also suggest some questions for further research.

6. Conclusion

In this paper, I discussed the semantic development of three adjectives that can be used in deontic expressions in Present-Day English. Neither *essential* and *crucial* – both of them loan words – nor *needful* – of Germanic origin – could be used in such expressions at the time of their earliest attestations. For each of them, I presented a pathway to deontic meaning, describing their development in terms of three semantic properties, viz. relationality (the ability to link two concepts on an abstract level, for instance on the basis of an inclusion relationship, or a relationship of necessity),

potentiality (the property of being possibly realised), and indispensability or desirability (the property of being desired or required). Table 4 below presents an overview of the three pathways outlined in the descriptive sections.

Adjectives	stages	initial stage	intermediate stage	final stage
Driving forces of semantic extension	semantic properties			
essential	relationality	-	+	+
patterns of co-occurrence	potentiality	-	-	+
	desirability	-	-	+
crucial	relationality	-		+
metaphorical projection	potentiality	-		+
	desirability	-		+
needful	relationality	-		+
the polysemy of <i>need</i>	potentiality	-		+
	desirability	-		+

Table 4: The pathways to deontic meaning of *essential*, *crucial* and *needful* in terms of the semantic properties of relationality, potentiality and desirability.

From this table it is clear that *essential*, *crucial* and *needful* differ as to how they developed the three semantic properties. As to the stages, *essential* has three of them, whereas for *crucial* and *needful* only two have been distinguished. A second respect in which the adjectives differ is the driving factors of their semantic extension, which have been taken up in the table as well. As to the semantic properties, however, none of the adjectives is characterized by any of the properties in their initial stage, but by all of them in the final stage of their semantic development.

As was mentioned in the descriptive sections above, after the final stage of semantic development, or, when the adjectives have acquired the three semantic properties, they do not necessarily express deontic meaning. Rather, they can also express dynamic meaning, signalling a necessity internal to a situation. As such, the three properties studied are not enough to characterize deontic meaning, which is conceptually more complex than dynamic situational meaning, as it involves a modal source assessing an action desirable or morally necessary on the basis of SoA-external

arguments. It is therefore not surprising that -at least in the cases of *essential* and *crucial*- dynamic expressions appear earlier than deontic ones. As for *needful*, deontic and dynamic utterances occur around the same time. More generally, we could draw a parallel with the semantic development of some of the modal auxiliaries, which were also dynamic in meaning before they developed deontic meaning (such as *may*, *can*, and *must* in Denison 1993: 292-339). However, the dynamic stages preceding deontic meaning all involve agent-internal (ability/capacity), rather than situational modality, so the comparison does not hold in that respect.

With this paper presenting three pathways to deontic meaning for adjectives, I hope to have made a contribution to fill the gap in the literature on modal adjectival predicates and the development of modal meaning in general. Arguably, the adjectives studied here may serve as exemplars for other adjectives that developed deontic meaning in processes of semantic extension, and form the basis of a typology of paths to deontic meaning, much in the vein of Bybee et al.'s (1994) proposal for verbs. Further research might confirm the speculation that the adjective *vital*, for instance, underwent a similar semantic development as *essential*, and that *critical* completed a similar path to deontic meaning as *crucial*. Other interesting questions lie in the loan word status of *essential* and *crucial*, but also *vital* and *critical*. Did these adjectives undergo a similar development in their source languages, and if so, could that fact have influenced their development in English? For the time being, however, these will remain questions for further research.

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