Revisiting deontic modality and related categories
A conceptual map based on the study of English modal adjectives
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Abstract

This study analyses the semantics of English deontic adjectives like *essential* and *appropriate*, and uses this to refine traditional definitions of deontic modality, which are mainly based on the study of modal verbs. In a first step, it is shown that the set of meanings associated with deontic adjectives is quite different from the set of meanings identified in the literature on modal verbs. Adjectives lack the directive meanings of obligation or permission, which are traditionally regarded as the core deontic categories, and they have semantic extensions towards non-modal meanings in the evaluative domain. In a second step, the analysis of adjectives is used to propose an alternative definition of deontic modality, which covers both the meanings of verbs and adjectives, and which can deal with the different extensions towards modal and non-modal categories. This is integrated into a conceptual map, which works both in diachrony – defining pathways of change – and in synchrony – accommodating refinements within each set of meanings.

Keywords: Deontic modality; Illocution; Evaluation; Adjectives; Conceptual map

1 Introduction

The literature on modality has typically focused on the category of modal verbs, with the Germanic modal auxiliaries as the prototypical cases. This bias is found both in language-specific accounts (e.g. Palmer, 1979; Coates, 1983; Goossens, 1985; Heine, 1995; Hansen, 1998, 2004), and in cross-linguistic studies (e.g. Palmer, 1986, 2001; Bybee et al., 1994; Van der Auwera and Plungian, 1998).[1] In this study, we will show that the analysis of modal adjectives in English, as in the extraposition constructions in (1) and (2), significantly changes our understanding of modal semantics, specifically with regard to deontic meaning and how it relates to other domains within and beyond modality.

(1)   It was **essential**, he said, that money was better distributed, so that it reached the poorest people. Money was power and without it, Professor Desai said, the millions of poor in India would remain without a true say in the running of their country. (CB, bbc)[2]

(2)   You can indulge the shortcomings of a friend a certain number of times and then, unwittingly, they go over the limit. You tot everything up and, like mounting endorsements on a driving licence, there comes a point when you decide that in total they are unforgivable and can no longer be overlooked. […] Sometimes it may be wholly **appropriate** not to forgive or forget. If your partner begs forgiveness and swears he will never do the same again, you may know in your heart of hearts that he's just confessing to get carte blanche to repeat the dirty deed. (CB, ukmags)

Traditionally, deontic modality has been defined in terms of the concepts of obligation and permission: deontic meanings of verbs like *must* express an obligation to carry out a particular activity, while deontic meanings of verbs like *may* express permission to do it (cf. von Wright, 1951a, b, 1971; Lyons, 1977:823–841; Palmer, 1979: ch. 4, 1986:96–115; Van der Auwera and Plungian, 1998:81).[3] Verbs with deontic meanings are typically also polysemous in the modal domain, with dynamic and epistemic meanings in addition to the deontic ones. Diachronically, such epistemic

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[1] However, the articles in Hansen and de Haan (2009) form notable exceptions in this respect.

[2] The Present-day English data are extracted from the COBUILD corpus (marked with CB) and are reproduced with the kind permission of HarperCollins Publishers. We also indicate the relevant subcorpus.

[3] We are, of course, aware of the controversy over whether different interpretations of a modal marker represent distinct meanings or uses (polysemy or vagueness) (e.g. Depraetere and Reed, 2006). We believe that the theoretical status of the interpretations we discuss in this study is not immediately relevant to the argument, so we leave this question aside. We will show, however, that in some cases the wider construction can serve to disambiguate (e.g. Section 4, examples (22)–(23)). Of course, the issue remains a question for further research.

meanings typically develop out of earlier dynamic and/or deontic meanings (cf. Goossens, 1999; Traugott and Dasher, 2002: ch. 3; Van Ostaeyen and Nuyts, 2004).

The study of adjectival constructions as in (1) and (2), however, seriously challenges such traditional accounts of deontic modality. First of all, these adjectives cannot encode the supposedly central deontic meanings of obligation or permission. Rather than imposing an obligation or granting permission, the structures in (1) and (2) merely describe the degree of desirability for a State of Affairs (SoA) to take place. Thus, the speaker uttering the clause in (1) does not oblige anyone to distribute money in a better way, but merely states that he regards it as highly desirable. Similarly, the speaker in (2) does not specifically allow anyone not to forgive or forget, but again just uses the construction to report on how desirable (s)he thinks this is. Secondly, deontic adjectives are different from deontic verbs in that they are often polysemous not just with dynamic modal meanings, as in (3) below, but also with meanings beyond the modal domain, as shown in (4) below.

(3)   This should make you want to go to the toilet frequently. Although it may sting the first few times you go, this usually gets better the more water you pass. It is **essential** to keep emptying the bladder if you are to flush out the germs. (CB, ukephem)

(4)   The system offers callers confidentiality and accepts calls day or night and weekends too. […] "As an IT consultancy, it's **appropriate** we're taking the initiative and using the latest IT technology," says Gary. The service employs INFOTAP 2000, a Windows-based software which enables audio information stored on a personal computer hard disk to be accessed by phone. (CB, today)

In (3), the construction with *essential* does not express deontic meaning as in (1), but rather a necessity that originates in the physical make-up of the human body. The only way to flush germs out of your bladder is to keep urinating. Unlike in the case of (1), this type of necessity does not involve any attitudinal source, as it does not express someone's personal opinion, but a natural law-like truth. In this study, this type of circumstantial necessity is regarded as a subcategory of dynamic modality, specifically SoA-internal or 'situational' dynamic modality (cf. Nuyts, 2005, 2006). The polysemy illustrated by (1) and (3) is familiar from the analysis of modal verbs, but another pattern of adjectival polysemy is less familiar. The construction with *appropriate* in (4), for instance, clearly does not express situational dynamic meaning, yet its meaning is also quite different from that in (2). Whereas in (2) the speaker talks about not forgiving or forgetting as virtual or potential SoAs, the SoA assessed in (4) has a different factuality status: it is taking place at the moment of speech. This difference in factuality status suggests that constructions

with adjectives such as *appropriate* are polysemous between deontic modality (cf. (2)) and what will be called 'non-modal evaluation' (cf. (4)).

Based on our analysis of adjectives, we will propose a redefinition of deontic modality that works both for modal verbs and for modal adjectives. In addition, we will integrate the different semantic categories expressed by the adjectival constructions and their distribution into a conceptual map. This map will be shown to work in diachrony as well as in synchrony, as it defines pathways of change and accommodates distinct synchronic refinements within each category.

The structure of this article is as follows. We begin by reviewing the notion of deontic modality as proposed in studies of modal auxiliaries in Section 2. In Section 3, we will discuss adjectival constructions and the modal-evaluative meanings they express. Since these constructions question the traditional definition of deontic modality, we will propose an alternative definition. In Section 4, we will relate this definition to the other meanings expressed by the constructions studied, using two parameters that together make up a conceptual map. In Section 5, we will adduce evidence for the diachronic validity and synchronic applicability of the conceptual map. In Section 6, finally, we will propose some questions for further reflection.

2 Modal auxiliaries and the deontic domain

As mentioned above, the traditional definition of deontic modality refers to the notions of obligation and permission. This characterization goes back to the tradition of modal logic, which equals obligation with "deontic necessity", and permission with "deontic possibility" (cf. von Wright, 1951a, b; Lyons, 1977:823; Kratzer, 1978:111; Van der Auwera and Plungian, 1998:81). Such accounts typically use examples such as (5) and (6) with the modal auxiliaries *must* and *may*.

(5)   You **must** open the door (Lyons, 1977:832 (3))
(6)   You **may** open the door (Lyons, 1977:832 (5))

In (5), the speaker imposes an obligation on the hearer by using *must*, or at least, (s)he states that the hearer is "obliged (by some unspecified authority)" to do so (Lyons, 1977:832). In (6), the speaker grants permission to the hearer to open the door by using *may*, or again, (s)he states that the hearer is allowed (by some unspecified authority) to do so.

Diachronic accounts of the development of modal auxiliaries are based on similar definitions of deontic modality. They have shown that the meanings of obligation and

permission originate in dynamic meaning (Goossens, 1999, 2000 on *must*; Traugott and Dasher, 2002: ch. 3; Van Ostaeyen and Nuyts, 2004 on Dutch *kunnen* 'can, may'). More specifically, the first modal meaning developed by auxiliaries such as *must* and *can* is the participant-inherent subtype of dynamic modality, ascribing abilities or needs to a participant as in (7) (cf. Nuyts, 2006:3). In a second stage, this participant-inherent meaning is extended to a participant-imposed subtype of dynamic meaning, indicating possibilities or necessities imposed by the local circumstances of a participant, as in (8) (cf. Nuyts, 2006:3). Deontic meaning, as in (9), then develops out of this participant-imposed dynamic meaning through subjectification (Traugott, 1989:35): the crucial difference from dynamic modality is the presence of an attitudinal source that takes responsibility for the deontic assessment. The final modal meaning developed by the auxiliaries is epistemic meaning, involving the speaker's (or someone else's) estimation of the likelihood or truth of a proposition, as in (10) below.

(7) Wilst ðu, gif þu **most**, wesan usser her aldordema,
Will you if you able.are be.INF our army leader
leodum lareow?
people.DAT teacher
'Are you willing, if you are able, to be the leader of [our] army, [a] teacher [for] the people?' (8th century, Genesis, 2482, as cited in Traugott and Dasher, 2002:122 (33))

(8) Ic hit þe þonne gehate þæt þu on Heorote **most** sorhleas
I it you[.DAT] then promise that you in Heorot [able.are] anxiety-free
swefan.
sleep
'I promise you that you will be able to sleep free from anxiety in Heorot.' (8th century, Beowulf, 1671, as cited in Visser, 1963–73:1791, and Traugott and Dasher, 2002:122 (34))

(9) we **moton** eow secgan eowre sawle þearfe, licige eow ne licige
We must you.DAT tell[.INF] your soul.GEN need please you.DAT not please
eow
you.DAT
'We must tell you about your soul's need, whether it pleases you or not.' (*c*1000 ÆCHom I, 17 (App) 182.240, as cited in Goossens, 1987:32)

(10) He that dooth good & doth not goodly … **must** nedes be bade
He that does good & does not rightly … must without.doubt be.INF bad
'Whoever does good, but does not do it with good intentions … must necessarily be bad.' (1385, Usk, Testament of Love (Skeat) 109, 90, as cited in Visser, 1963–73:1810, and Traugott, 1989:42 (25))

More recent accounts of modal auxiliaries have proposed a distinction between obligation and permission on the one hand, and desirability on the other hand. Thus, for instance, Nuyts et al. (2005) argue that the meaning of examples like (11) and (12) below is quite different from the traditional notions of obligation and permission.

(11)　A: And you are going to bring your poems or what?
　　　B: Yes, because I have such a hard time deciding what I am going to take. I have to pick out three, and they **should** relate to each other to some extent, in my opinion, and it can't be too sinister I think. (cited in Nuyts et al. 2005: 29 (24))[4]

(12)　There is no pre-contract available in Scotland. I have written to both the SFA and the Scottish League pointing this out. Morton will not be disadvantaged by any other football club. We also **deplore** that a person not involved in the affairs of this club gave advice to the player. (CB, sunnow)

These structures indicate the degree of (moral) desirability of an SoA. They relate to the traditional notions of obligation and permission as would sincerity conditions to an illocutionary act (compare Searle, 1969, 1976): "a deontic assessment may serve as the 'sincerity condition' of a directive, i.e. as the 'mental state' underlying the obligation or permission" (Nuyts et al., 2010:18) In this perspective, the fundamental difference between the two is that the meanings expressed in (11) and (12) are attitudinal, with a primary function in the domain of qualifications of SoAs, while the traditional notions of obligation and permission are illocutionary, with a primary function in the interactional system of language. While such distinctions may at first sight seem more relevant to philosophical debates rather than linguistic ones, our analysis of adjectives will show that there are actually good linguistic reasons to keep the two types of meaning apart, and to shift the core of deontic meaning from obligation/permission to desirability.

3 Adjective classes and the deontic domain[5]

Against the traditional approach, the adjectival data show that it is useful to distinguish between deontic meaning, which serves to qualify SoAs, and directive meaning, which is

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[4] In fact, this example is the authors' translation of the Dutch original in (i) below, taken from the *Corpus Gesproken Nederlands* ('Corpus of Spoken Dutch').

(i)　　*A: en gij gaat dan uw gedichten meebrengen of wat?*
　　　　*B: ja want ik kan zo moeilijk beslissen wat dat 'k ga nemen. ik moet er drie uitnemen en ze **moeten** een beetje verband hebben met elkaar vind ik en 't mag niet te zwartgallig zijn vind ik.* (42 – fv700058)

[5] This section is based on Van linden (2009:34–46, forthc.).

illocutionary in nature, as also proposed in Nuyts et al. (2005, 2010). Consider the following examples.[6]

(13)   Country sports make a hugh [sic] voluntary contribution to conservation of the countryside Angling clubs fight pollution and water abstraction; shooting and hunting enthusiasts maintain woodlands and hedgerows. It is **essential** that we protect wildlife habitats; but we have to face up to the fact that 80 [%, *AVL & JCV*] of the countryside is in private ownership. (CB, ukephem)

(14)   We consider that our security must be guaranteed by consolidating the nationalities within our own nation-state and also through bilateral treaties with all the other Balkan countries. It's also **important** to set up a European security system. (CB, bbc)

(15)   It is **obligatory** to drive with dipped headlights on, even during the daytime, even on the brightest summer day. This rule applies to all vehicles, including motorcycles and mopeds. (CB, ukephem)

In example (13), the speaker regards it as highly desirable that we protect wild life habitats. In example (14), the speaker regards it as important to set up a European security system. Both examples involve an attitudinal judgement of desirability on the part of the speaker, but they do not encode the illocutionary meaning of obligation. By contrast, example (15) with *obligatory* does encode (descriptive) directive meaning: the speaker reports on the existence of the obligation to drive with dipped headlights on, but does not necessarily assess this as desirable. Such examples support the need to distinguish conceptual deontic meaning from illocutionary directive meaning as proposed by Nuyts et al. (2005, 2010), since the two types of meaning correlate with different sets of adjectives. Still, our adjectival data also suggest that deontic and directive meaning are not unrelated. One reason is that the hearer may infer a directive meaning from a deontic expression as a preferred interpretation (Levinson, 2000), but this remains a cancellable implicature: the speaker of (14) may say "I just said it is important to set up a European security system, I did not order you to take steps yet". Another reason is that speakers may intend to perform a directive speech act but choose to use a deontic expression in order to minimize the 'face work' (Brown and Levinson, 1987). Deontic expressions can thus be used as a polite alternative for a directive (cf. Nuyts et al., 2005:48).

Even though our data on adjectives back up the distinction between deontic and directive meaning as proposed in the work of Nuyts, they also show that his new definition of deontic modality is not unproblematic. More precisely, the deontic category

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[6] Our analysis is based on a qualitative study of 22 adjectives in Present-day English examples extracted from the British subcorpora of the COBUILD Corpus, including data from a wide variety of genres and registers (for more information, see http://www.collins.co.uk/cobuild/) (Van linden, 2009: ch. 2). The 22 adjectives are listed in Figure 1 below, viz. the weak, strong, and directive adjectives.

is defined so broadly that it does not take into account the factuality status of the SoA under assessment. Expressions of permission and obligation (deontic in the traditional definition) invariably involve potential SoAs, which are by default realized in the future (cf. Bolinger, 1967:356–359; Palmer, 2001:8; Verstraete, 2007:42–46). Nuyts (2005:23), however, argues that deontic expressions involve the estimation of "the degree of moral commitment of the speaker to a *real* or *possible* state of affairs" (italics added), and thus assumes that deontic modality applies to both factual and potential SoAs. In his view, the following examples all express deontic meaning.

(16)   OBVIOUSLY, when choosing a guitar, it's **important** to consider the style of music you'll be playing. Nick: "Yeah, the Starfield is on a par with the Hohner, but in a different style. If you're playing rock it's always good to go for something with humbucking pickups." (CB, ukmags)

(17)   The show at The Works had a lot of coverage from the mainstream press, which included the Independent, I-D magazine and even the Sun, who took great delight in including an inset of the Bona Lisa. I felt it was very **important** that they chose to feature Lesbian Arts Network, as it meant that the mainstream was readily accessible. Such results are the driving force behind Sadie's work. (CB, ukmags)

(18)   It is going to be fascinating next season with the two big guns, Arsenal and United, head-to-head at the top of the Premiership and in the European Cup. It can only be **good** for English football that so much quality will be on view in the Champions League, which rival managers Arsene Wenger and Alex Ferguson will be desperate to win. (CB, sunnow)

In example (16), the SoA that is assessed as important is potential at the time of speaking. The expression serves as a general guideline in choosing guitars, and the SoA referred to in the *to*-clause has not been carried out yet (nor does the context give indications as to whether it will be carried out or not). In example (17), by contrast, the context suggests that the SoA assessed as important (viz. the decision to feature Lesbian Arts Network) has already been actualized at the moment of deontic assessment (*I felt*). In example (18), the SoA that is assessed as good (viz. the participation of Arsenal and Manchester United in the Champions League) has not been actualized at the moment of deontic assessment (viz. the moment of speech), but at that same time, it is certain that these two clubs will compete in the Champions League. Thus, we can conclude that deontic expressions as defined by Nuyts (2005) can be divided into two types on the basis of the factuality status of the SoAs being assessed. The SoA can be either potential (as in (16)), or presupposed to be true (already actualized in (17), or bound to be actualized in (18)) – compare McGregor's (1997:221–222) distinction between desiderative and evaluative attitudinal modification.

This difference in factuality status in the construction also implies a difference in the semantics of the clausal complement and the adjectival matrix. In fact, only potential SoAs, as in (16), can be regarded as desirable in the true sense of the word, as these SoAs have not yet been actualized. Deontic constructions with a potential SoA in their complement have a volitional flavour: the assessor wants the SoA to be actualized (cf. Kiefer, 1997:242; McGregor, 1997:222). Therefore, complements containing a potential SoA will be termed 'mandative' complements (cf. Wierzbicka, 1988:133–134 on verbal complementation; Huddleston and Pullum, 2002:996). By contrast, complement constructions with presupposed SoAs lack this volitional flavour. In fact, it makes little sense to desire the actualization of an SoA that has already been actualized (temporal relation of anteriority, as in (17)), is being actualized (temporal relation of simultaneity, as in (4)), or is bound to be actualized (temporal relation of posteriority, as in (18)). Therefore, speakers cannot assess such SoAs as desirable, but they can only evaluate them as, for instance, appropriate (as in (4)), important (as in (17)), or good (as in (18)). It should be noted that with presupposed complements, *important* typically means 'significant', as in (17) (cf. Lemke, 1998:36–37). All of this shows that the factuality status of the SoA under assessment also forces a different meaning onto the adjectival matrix, in this case an evaluative meaning. Since the complements containing a presupposed SoA are propositions to which the evaluation encoded by the adjective applies, these will be termed 'propositional' complements (cf. Van linden and Davidse, 2009). In Section 4, we will give further semantic and syntactic arguments for the distinction between mandative and propositional complements.

More generally, we argue, against Nuyts et al. (2005, 2010), that the difference in factuality status of the SoA, and its influence on the interpretation of the adjective, calls for a distinction between two types of meaning. In fact, we propose a delineation of deontic modality that covers expressions with a potential SoA like (16), but excludes expressions with a presupposed SoA like (17) and (18). More specifically, in our view, deontic modality involves the assessment of the degree of desirability of a virtual SoA, whose realization is by default in the future, by some attitudinal source. This means that, when compared to Nuyts's (2005:23) definition, deontic modality is reduced to its traditional definition to some extent, in that – like the concepts of obligation and permission/directives – it is restricted to virtual SoAs. The crucial point, however, is that we stick to the distinction between deontic and directive meaning: deontic expressions never encode the directive notions of obligation or permission. In addition, we propose to relegate the expressions with a presupposed SoA to the realm of evaluative meaning, on a par with other expressions in which the (speaker's) attitudinal assessment also applies to a proposition. Examples of such expressions are given below.

(19)   He is still recognized today, even without the sideburns. "I'm afraid I'll probably be famous for that," he says. "But it's **surprising** that after 20 years people recognise me. Sometimes they say very choice words." (CB, times)

(20)   It is **ironic** that India reveres thousands of goddesses and mothers as a reincarnation of a goddess on earth and yet we allow the dowry system which has become an extortion racket and the 'duty' to have a son. (CB, ukmags)

These examples involve attitudinal or evaluative judgements and contain propositional complements with presupposed SoAs. Therefore, these expressions will be taken to express 'non-modal' evaluative meaning (cf. Perkins, 1983:12; Kiefer, 1987:88; Narrog, 2005:185–187; see also Section 4).

   As mentioned above, adjectival constructions can also express situational dynamic meaning (cf. (3)) in addition to deontic and non-modal evaluative meaning. There is, in fact, interesting evidence for the distinction between deontic meaning and the conceptually related categories of dynamic and non-modal evaluative meaning in the lexical distribution of adjectives across these three types of meaning. Adjectives such as *essential*, for instance, which express a strong degree of desirability in the deontic domain (cf. (1)), are also found in situational dynamic expressions (cf. (3)), but they do not occur in non-modal evaluative expressions. Adjectives such as *appropriate* and *important*, by contrast, which express a weak degree of desirability in the deontic domain (cf. (2), (16)), are also attested in non-modal evaluative expressions (cf. (4), (17)), but they are not found in situational dynamic expressions. The adjectives can thus be divided into two semantically coherent lexical classes, viz. weak and strong adjectives, which manifest different patterns of polysemy in the deontic domain and related conceptual domains. Whereas the strong adjectives are semantically most similar to the modal auxiliaries, the weak adjectives have a potentiality which modal auxiliaries lack, viz. they can be used to express non-modal evaluative meaning. They thus present us with a new type of polysemy in the modal-evaluative domain.

4 An alternative map of deontic modality and related meanings[7]

The preceding section has discussed the semantic distinctions at work in constructions with adjectives like *appropriate*, *good*, *important* and *essential*. In this section, we will integrate these findings in a conceptual map that covers not only adjectives, but also verbs, modal auxiliaries and imperative mood. A discussion of the division of labour between these categories is postponed until Section 6. We will first present our

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[7] This section is based on Van linden (2009:46–54, forthc.).

conceptual map, given in Figure 1 below, and focus on how it integrates the distinctions observed in the preceding sections.

<Please insert Figure 1 about here>

There are two basic distinctions along which the map is organized. The first distinction is between conceptual and illocutionary meaning, or more generally, between the qualificational and the interactional system of language. As pointed out in Section 2, deontic modality has traditionally been defined in terms of permission and obligation, which are in fact illocutionary notions. Against this traditional approach, Nuyts et al. (2005, 2010) have proposed distinguishing between deontic meaning, which is conceptual in nature, and directive meaning, which is illocutionary in nature, as adopted here in the conceptual map. This distinction is represented on the horizontal axis of the map.

Apart from the semantic motivations presented in Section 2, the study of adjectives in Section 3 also adduced lexical arguments in support of the distinction between conceptual and illocutionary meaning, in the sense that specific sets of adjectives specialize in either of the two types of meanings. In the map, lexical boundaries are represented in dashed lines. Adjectives such as *advisable*, *obligatory*, *compulsory* and *mandatory* (in grey font) are all located in the illocutionary domain on the right. They can only express descriptive directive meaning, i.e. they report on a recommendation or an obligation (cf. (15)) but do not necessarily involve the speaker's commitment to desirability. The other adjectives (in black font) are all situated in the conceptual domain.[8] In addition, the arrow going from the conceptual to the illocutionary domain indicates that deontic adjectives – unlike their directive counterparts – can pragmatically shift domains. The arrow represents the plausibility of conversational implicatures from deontic meaning to directive meaning (as discussed in Section 3 above). Deontic constructions with weak adjectives such as (14) can be intended or interpreted as a piece of advice, whereas deontic constructions with strong adjectives such as (13) can be intended or interpreted as an obligation.

Interestingly, there is evidence from grammaticalization studies that in other languages the same arrow also specifies the direction of grammaticalization processes. Of the seventy-six languages sampled by Bybee et al. (1994:31), thirty-four show evidence of a lexical source for a form expressing obligation. Three of these developed from adjectives. Both for Mwera (Niger-Congo) and Lahu (Sino-Tibetan), the source is 'be fitting, be proper' (1994:183). In Palaung (Mon-Khmer), the particle for obligation means 'good', "perhaps giving the implication 'it is good, fitting to'" (1994:183). In some

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[8] It can be noted that on the horizontal axis both the deontic and directive adjectives are separated from the modal auxiliaries, as these can be used to encode conceptual or illocutionary meaning, whereas the adjectives are restricted to one of these two types.

Slavonic languages, impersonal adjectival matrices have also grammaticalized into markers of obligation (Hansen, 2004:250, 253). The driving factor of these grammaticalization processes is probably the semanticization or conventionalization of conversational implicatures, which is also seen at work in related semantic changes (e.g., Traugott and Dasher (2002) on the development of English modal auxiliaries *must* and *ought to*). It should be noted, finally, that in the cross-linguistic data, it is constructions with weak adjectival matrices that develop into markers of obligation. In this sense, it is interesting to note that the weakest or most polite deontic expression has acquired the strongest directive meaning. The question why this is the case is beyond the scope of this study. What is important here is that there are indications that the horizontal arrow in the map has diachronic as well as cross-linguistic validity.

The second basic distinction in the map is between dynamic, deontic and non-modal evaluative meaning, all within the domain of conceptual meaning. This distinction is based on two parameters, represented on the vertical axis on the left in the map. Specifically, the three types of meaning can be distinguished on the basis of the presence or absence of an attitudinal source, and on the basis of the factuality status of the SoA (see Sections 1 and 3). Both parameters have been proposed in previous work, but it is their combination that we believe offers a new perspective in the literature on modality.

First, the parameter of the presence or absence of an attitudinal source sets apart dynamic modality from both deontic modality and non-modal evaluation. This is a well-known parameter in analyses of modal meaning, see for instance Halliday (1970), Verstraete (2001), and Nuyts (2005). As discussed in Section 1 (cf. (3)), dynamic expressions do not involve attitudinal judgements: abilities/possibilities or needs/necessities inherent in the participant or in the situation are internal to the SoA. Unlike dynamic expressions, deontic ((cf. (13), (14)), epistemic (cf. (10)) and non-modal evaluative expressions (cf. (17), (18)) involve attitudinal sources, which make an assessment of the desirability of virtual SoAs, or the likelihood or significance/appropriateness of propositional contents (see Sections 2 and 3).

Second, the parameter of factuality status sets apart non-modal evaluation from dynamic and deontic modality. This parameter implies a definition of modality in terms of the factuality of the SoA, as proposed in, for example, Narrog (2005). More specifically, dynamic and deontic expressions do not take the factuality status of the SoA for granted. Rather, they are indeterminate with regard to their factuality status. Non-modal evaluative expressions, by contrast, invariably involve presupposed SoAs: the attitudinal source expresses his/her commitment to a propositional content that is presupposed to be true (see Section 3).

Like the distinction on the horizontal axis, the distinctions on the vertical axis are corroborated by arguments from lexical distribution. As can be seen in the map, the two parameters discussed above correlate with patterns of polysemy of weak and strong

adjectives (see Section 3). Weak adjectives can be found in deontic expressions and in non-modal evaluative expressions, as illustrated by *appropriate* in (2) and (4) respectively, but not in dynamic ones. With respect to the parameters, this implies that there is a subset of adjectives that is specialized in attitudinal meaning. For this subset, the parameter of factuality status provides a further distinction, viz. between deontic meaning, involving potential SoAs, and non-modal evaluative meaning, involving presupposed SoAs. Strong adjectives, by contrast, are polysemous between deontic and dynamic meaning, as illustrated by *essential* in examples (1) and (3) respectively, but they do not occur in non-modal evaluative expressions. With respect to the parameters, this implies that there is also a subset of adjectives that is restricted to modal expressions with potential SoAs. Here, the parameter of the attitudinal source makes a further distinction between dynamic and deontic meaning. However, this distinction is merely conceptual: the first indicates needs or necessities on the basis of SoA-internal grounds, whereas the second is based on SoA-external (e.g. moral) grounds. Unlike in the case of deontic and non-modal evaluative expressions (see further below), there are no formal differences between the complements of dynamic expressions and those of deontic ones. Figure 2 visualizes the interaction of the parameters with the two sets of adjectives in relation to the conceptual categories they express. It shows that the parameter of the attitudinal source correlates with the patterns of polysemy of weak adjectives, whereas the parameter of factuality correlates with those of strong adjectives.

<Please insert Figure 2 about here>

Further arguments for the distinction between modal and non-modal evaluation can be found in the semantic and syntactic properties of mandative versus propositional complements. In Present-day English, for example, only mandative complements allow the subjunctive mood, as in (21) below. Both semantic types of complement can have *should* as finite form, but this form has a different meaning in each type. Huddleston and Pullum (2002:995), for instance, distinguish between "mandative" and "attitudinal" *should*. They further note that only the first type, illustrated in (22), can be replaced by a subjunctive form (2002:1001). The second type, illustrated in (23), by contrast, can only be replaced by an indicative form (or an epistemically used modal auxiliary).

(21)   When those in the higher ranks give a verbal order it is **crucial** that it <u>be understood</u> by everyone. On the few occasions I have seen and heard Marcus Fox on television, I have had difficulty understanding him, but that hardly matters. (CB, times)
(22)   Responding to Sanco's position, a statement issued by government spokesperson Dave Steward in Cape Town said free and fair elections will be impossible unless

all political parties are allowed to campaign freely in all parts of the country and among all communities. In this process (of democracy) it is **essential** that the playing fields <u>should be</u> even for all parties in all circumstances the government statement said. (CB, ukmags)

(23)   Sir, It was poignant and entirely **fitting** that the nation <u>should fall</u> silent for one minute on Sunday to demonstrate its sympathy for Dunblane's awful loss (report, 18/03/1996); and how striking it was that supermarkets, stations and sports stadiums suspended their business at the time. (March 13, a massacre took place in Dunblane, Scotland) (CB, times)

We can thus conclude that apart from the lexical arguments given above, there are also semantic and syntactic arguments in support of the distinction between modal and non-modal evaluation.

5 Further evidence for the conceptual map

In this section, we will present further arguments in favour of the conceptual map and the distinctions proposed so far. In particular, we will show its diachronic validity and synchronic applicability. In Section 5.1, we will discuss the diachronic relations between the categories in the map, and in Section 5.2 we will discuss synchronic refinements of these categories, which provide evidence for their different internal organizations.

5.1 Diachronic validity

In Section 4 we briefly discussed evidence from grammaticalization for the diachronic relation between deontic and directive meaning on the horizontal axis of the map. In this section, we present arguments for defining the vertical axis (from dynamic over deontic to non-modal evaluative) as a diachronic pathway of change, focusing on the development of the adjectives as well as that of their complement patterns.

A first line of argument relates to the diachronic development of the adjectives. Historical corpus data confirm that dynamic and deontic modality are diachronically ordered in the domain of adjectives, as discussed in more detail in Van linden et al. (2008) and Van linden (2009: ch. 3, 2010). Strong adjectives of non-Germanic origin, like *essential* and *crucial*, for instance, first develop situational dynamic meaning from their original non-modal meaning, and thus enter the conceptual map from below. In a later stage, they develop deontic meaning through the process of subjectification (Traugott, 1989:35). This dynamic-deontic pathway is similar to the one proposed for

modal auxiliaries such as *can* or *must* (cf. Goossens, 1999; Traugott and Dasher, 2002: ch. 3). However, whereas the modal auxiliaries first undergo micro-changes within the dynamic domain from participant-inherent to participant-imposed meaning before they develop deontic meaning (see Section 2), the adjectives develop only one type of dynamic meaning which leads to deontic meaning, viz. situational meaning. Even more interestingly, the analysis of the pre-modal stages of the adjectives offers new insights into how the lexical items develop modal meaning in the first place. This development turns out to crucially depend on the development of two semantic properties, viz. relationality and potentiality, which can be regarded as the conditions of entry into the conceptual map. Relationality is needed to turn the adjective into a predicate of necessity that can link two concepts. In *heat is an essential property of fire*, for instance, *essential* links a part (heat) with a whole (fire), establishing a relation of intrinsic inclusion. Potentiality, developed later than relationality in the case of *essential* and *vital*, and at the same time in the case of *crucial* and *critical*, is needed to ensure that the relationship established by the adjective is one of indispensability, rather than intrinsic inclusion, which gives rise to dynamic meaning, as in *practice is essential to perfection*. Due to restrictions of space, it is impossible to elaborate on these developments more extensively, but further details can be found in Van linden et al. (2008) and Van linden (2010).

A second piece of evidence pertains to the diachronic development of the complement patterns, and points to a developmental relation between deontic and non-modal evaluative meaning. As shown in Van linden and Davidse (2009), adjectives that manifest a time lag between their occurrence in deontic and non-modal evaluative constructions invariably pattern with mandative complements first, before they can take propositional complements. Two pathways can be distinguished. One pathway has a combined mandative-propositional pattern as the transitional stage, as in (24), from which the mandative *to*-clause – typically including a cognition verb, such as *note*, *remember* or *observe* in (24) – has been dropped but remains in some sense implied (A > A+B > B). This development accounts for the specific semantic-pragmatic value of their single proposition pattern: the attitudinal source does not assess the propositional content in the complement as important, but rather encourages the hearer to focus mentally on that propositional content. In (25), for instance, the speaker urges his interlocutor to focus mentally on his motivation in designing clothes: he wants to reach as many people as possible, not just the upper-class.

(24)   This statement I have endeavoured to verify, and I believe it to be substantially correct; if it was a resolution, it was dictated, not discussed. It is also **important** to observe, that no similar resolution stands on the council-books for any previous

year. (CLMETEV 1830 Babbage, *Reflections on the decline of science in England*)[9]

(25)　I'm not into just designing for those people with money. I mean I think it's really **important** that I want to reach as broad a field as possible <M01> Mm <F04> I mean I'm going to open a shop erm next month <M01> What a wedding shop <F04> just dedicated to weddings as well. (CB, ukspok)

The other pathway involves bridging contexts as the transitional stage, which contextually support both a mandative and propositional reading (A > A/B > B) (cf. Evans and Wilkins, 2000:550). In (26), for example, the context allows both a mandative and attitudinal interpretation of *should* in the complement. In the propositional pattern, illustrated in (27), the attitudinal source evaluates the propositional content as appropriate; construction B thus expresses true non-modal evaluative meaning.[10]

(26)　A Lawyer is an honest Employment, so is mine. Like me too he acts in a double Capacity, both against Rogues and for 'em; for 't is but **fitting** that we should protect and encourage Cheats, since we live by them. (CLMETEV 1728 Gay, *The beggar's opera*)

(27)　Gradually her brain, recovering from its obsession, began to grasp the phenomena of her surroundings, and she saw that she was on a yacht, and that the yacht was moving. […] Nella all through her life had had many experiences of yachting. […] She loved the water, and now it seemed deliciously right and **proper** that she should be on the water again. (CLMETEV 1902 Bennett, *The grand Babylon Hotel*)

Together with the evidence of the semantic development of the adjectives, this second argument on the development of the complement patterns shows that the vertical axis of the conceptual map also accommodates pathways of diachronic change.

5.2 Synchronic applicability

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[9] Examples (24), (26) and (27) are taken from the extended version of the *Corpus of Late Modern English texts* (De Smet, 2005, 2008).

[10] The meaning of weak adjectives such as *fitting* and *proper* in constructions with propositional complements often boils down to a general positive evaluation, evoking qualities such as 'good', 'natural', 'logical', 'significant', etc (cf. Van linden and Davidse, 2009:180). In this sense, these meanings are very similar to the lexical pre-modal meanings of the adjectives. As suggested by a referee, it can thus be hypothesized that these post-modal meanings in non-modal evaluative constructions are continuations of the pre-modal meanings in predications of entities, rather than of the modal meanings in deontic constructions (predications of potential SoAs).

The evidence for the synchronic validity of the conceptual map lies in its potential for semantic refinement. Detailed analysis of Present-day English corpus examples shows that the categories of the map can still be subdivided. Crucially, each category on the vertical axis has a different internal organization, whereas the two adjacent categories on the horizontal axis have a similar one (Van linden, 2009: ch. 6, forthc.).

If we take a closer look at the set of constructions expressing deontic modality, the category that is central in this article, we can actually distinguish between two subtypes of deontic meaning. More precisely, expressions of desirability can function on two distinct levels, either relating to events in the real world (SoA-related), or relating to the speaker's argumentative goals (speaker-related), as has been observed for other linguistic phenomena, like interclausal relations (e.g., Davies, 1979:146–176; Sweetser, 1990:76–112; Verstraete, 2007: ch. 9). SoA-related uses express the desirability for someone to carry out a particular SoA in the real world, as in (28). Speaker-related uses, by contrast, are not so much oriented towards the extralinguistic world, but are used to structure a stretch of discourse, as in (29) below, to build an argument, or to focus the hearer's attention onto a certain proposition.

(28)   TONY Blair's Drug Czar Keith Hellawell admitted last night it would be 'pie in the sky' for him to pledge the creation of a totally drug-free Britain. But he insisted it was **vital** to warn kids of the perils they face. He said: "Children as young as five need to understand the consequences that drugs have. It's **crucial** we get to them before the drug dealers do." (CB, sunnow)

(29)   Therefore missionary translations appealed to the very roots of these societies, touching the springs of life and imagination in real, enduring ways. Perhaps it was to this phenomenon that Pliny the Younger referred in his letter to the Emperor Trajan, namely, that Christian renewal also transforms while stimulating older habits and attitudes. Whatever the case, it would be **appropriate** to conclude this section of our discussion with a closer clarification of the vernacular issue in Christian missionary translation, and do this in two interconnected stages. (CB, ukbooks)

In (28) the SoAs that are assessed as desirable clearly relate to the real world: warning children about the dangers of drugs before they are exposed to drug dealers is something that can only be carried out in the extra-linguistic world. In (29), however, the SoA assessed as desirable relates to text structure and the deontic expression as a whole serves the speaker's argumentative goals. Specifically, it is used to indicate that the speaker has finished the body of the text and now proceeds to the conclusion. The speaker also indicates what this conclusion will look like, viz. a clarification of the vernacular issue in Christian missionary translation.

Interestingly, the same distinction between SoA-related and speaker-related uses can be found in the directive domain. Consider the following examples with *obligatory*.

(30)   Use of safety belts is obligatory in back seats, if fitted, as well as in front seats. It is also **obligatory** to use child safety equipment where fitted. Failure to do so may result in a fine of max. NOK 500. (CB, ukephem)

(31)   In reconciliation with past tracer permeability experiments and current understanding of pathogenesis of proteinuria from knockout and knockin mice, it seems **obligatory** to conclude that the integrated functions of all strata of the glomerular capillary wall are essential to maintain its permeability characteristics. With the disruption of any component, either of slit diaphragm or GBM, one would anticipate a compromise in the barrier functions of the capillary wall. (http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1941605, accessed on 28 dec 2008)

In (30), the obligation to use child safety equipment where fitted clearly relates to extralinguistic reality. The example thus expresses SoA-related directive meaning. The directive expression in (31), however, is used to serve the speakers' argumentative goals in building a text. It is found in the final section of a paper on renal glomerular capillaries, and it is used by the writers to indicate that the description of the research in the main body of the text has come to an end. At the same time, the expression points to the conclusion that follows from what has been described in the preceding discourse, and, like in (29), it justifies the contents of the following discourse. The examples therefore illustrate that like adjectives such as *crucial* and *appropriate*, directive adjectives can also function on two distinct levels, viz. an SoA-related level and a speaker-related level. Hence they show that the two categories on the vertical axis of the conceptual map share the same internal organization.[11]

By contrast, the two remaining categories on the vertical axis of the map do not distinguish between SoA-related and speaker-related uses. The category of dynamic modality, first, is not compatible with speaker-related usage, as dynamic expressions do not involve an attitudinal source whose argumentative purposes could be served. Rather, they always relate to the outside world, expressing necessities that originate in circumstances such as the nature of things (e.g. the landscape in (32)), or in self-imposed systems (e.g. the parliamentary system of Great Britain in (33)).

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[11] It should be noted that deontic and directive meaning only share the same internal organization on the first level of refinement. More detailed analysis actually uncovers differences between the two categories, as described in Van linden (2009: ch. 6, forthc.).

(32) I say "up there" meaning the high lake above Llyn Lliwiog, a remote barren tarn that was my best retreat. To reach this high lake it was **necessary** to climb to the Diffwys, to go the length of that dark valley and to climb again the height of the rim at its far end: from there it was a gentle walk down to the lake. (CB, ukbooks)

(33) Now we have the chance to protect wild animals from this kind of sickening cruelty. On 14th February, Parliament will debate the Wild Mammals (Protection) Bill. 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, ukephem)

Non-modal evaluative meaning does always involve an attitudinal source, but the distinction between SoA-related and speaker-related uses does not seem to be relevant here either. For instance, if we turn example (29) into a non-modal evaluative construction as in (34), we do not get an expression that can be used to serve the speaker's purposes in text-building.

(34) Whatever the case, it [is] **appropriate** to [have concluded] this section of [the] discussion with a closer clarification of the vernacular issue in Christian missionary translation, and [have done] this in two interconnected stages.

This example can only be interpreted as an evaluation of an established fact; it cannot be used to structure a text. The fact can be understood as an action of the speaker at a time anterior to the time of speaking, or as an action accomplished by someone else at a time anterior to the time of speaking. In any case, the expression as a whole has lost its potential to indicate and motivate the organization of a text, which shows that non-modal evaluative meaning has a different organization from deontic meaning.

In summary, the synchronic evidence for the conceptual map rests on the finding that the categories on its vertical axis have a different internal organization, reflecting their different conceptual make-up, whereas the categories that are adjacent on its horizontal axis feature a similar internal structure, which may explain why they have typically been conflated in the literature (see Sections 2 and 3). In particular, we showed that the distinction between SoA-related and speaker-related uses is relevant to the deontic and directive domain, but not to the dynamic and non-modal evaluative domains. Present-day English corpus examples show that these last domains can be refined as well, but a detailed account of these refinements is beyond the scope of this article (see Van linden, 2009: ch. 6 for further details). We can conclude here by presenting the conceptual map again, integrating the evidence for its diachronic validity and synchronic applicability.

<Please insert Figure 3 about here>

6 Conclusion

In this article we have revisited the notion of deontic modality from the perspective of an under-studied category in the modal domain, viz. adjectives. Whereas traditional accounts based on modal auxiliaries have defined deontic modality in terms of obligation and permission and have shown patterns of polysemy with dynamic and epistemic modal meaning, we have argued for a distinction between deontic and directive meaning in keeping with Nuyts et al. (2005, 2010), and we have established patterns of polysemy of deontic modal meaning with dynamic modal meaning and non-modal evaluative meaning. Thus we have redefined deontic modality as expressing someone's (i.e. of the attitudinal source) assessment of the desirability for someone to carry out an SoA, without imposing an obligation or granting permission. Against Nuyts et al. (2005, 2010), however, we have shown that it is necessary to factor in the parameter of factuality status in the definition, in order to filter out the category of non-modal evaluation.

In the process, we posited two parameters which distinguish between the three types of meaning expressed by adjectival complement constructions: (i) the parameter of the presence or absence of an attitudinal source groups deontic and non-modal evaluative meaning, and distinguishes these from dynamic meaning; (ii) the parameter of factuality status of the complement SoA puts together dynamic and deontic meaning, and distinguishes these from non-modal evaluative meaning. Importantly, these conceptual distinctions correlate with the lexical distinction between strong and weak adjectives, in that strong adjectives such as *essential* are restricted to expressions with an indeterminate factuality status (viz. virtual or potential SoAs in dynamic and deontic constructions), while weak adjectives such as *appropriate* only occur in attitudinal expressions (viz. deontic and non-modal evaluative constructions). These conceptual and lexical distinctions have been integrated into a conceptual map, for which we have adduced additional evidence showing its diachronic validity and synchronic applicability (see Figure 3 above).

Beyond the immediate question of the nature of deontic modality, the discussions above also suggest that it is important not to focus on one specific part of speech when examining a modal category. This brings us back to the conceptual map and its formal types of expressions. The following figure, in which the conceptual map has been redrawn as a Venn diagram with four circles, shows the division of labour for the different parts of speech and inflectional categories in English.

<Please insert Figure 4 about here>

As seen in Figure 4, the modal auxiliaries are most central in the diagram, though not exactly at the intersection of all four circles. As mentioned above, they can express deontic, dynamic and directive meaning, but they cannot be used to express non-modal evaluative meaning. The least polyvalent device is the imperative mood, which can perform only one type of labour, viz. the expression of directive meaning. Intermediate between the imperative mood and the modal auxiliaries are the adjectives studied here. Weak adjectives are found at the intersection of deontic and non-modal evaluative meaning, whereas strong adjectives are found at the intersection of deontic and dynamic meaning. The figure also shows that a specific class of adjectives, viz. weak ones, has a functionality which the auxiliaries lack. Therefore, this diagram clearly demonstrates that the study of modality and evaluation should not be restricted to modal auxiliaries or mood types.

In addition, the data analysed here also suggest that we should not a priori exclude particular modes of communication or registers from analysis. The fact that modal expressions are omnipresent in everyday conversation might lead us to focus on spoken data or informal registers. This study, however, shows that constructions which are typical of more formal registers and the written mode, like adjectival complement constructions, offer interesting insights as well.

Finally, the description of the conceptual map proposed here raises the question to what extent it could be regarded as a semantic map, "a geometric representation of meanings or, if one likes, uses, and of the relations between them" (Van der Auwera and Plungian, 1998:86). Semantic maps, like the map of modality proposed by Van der Auwera and Plungian (1998), are often used in typological studies: they depict and constrain how genetically and areally diverse languages divide a particular semantic/conceptual space among their lexical and/or grammatical items, both with regard to diachrony and synchrony (Van der Auwera and Plungian, 1998:86; Haspelmath, 2003). The discussion of the main findings of this study suggests the proposed conceptual map shows some but not all characteristics of a semantic map. Like a semantic map, it is diachronically valid in that it accommodates pathways of change for specific lexical items and constructions. In addition, it also applies in synchrony, in that the linguistic items meet the adjacency requirement: in the map, the different meanings or uses of the adjectives (and modal auxiliaries) are adjacent (cf. Van der Auwera and Plungian, 1998:112). However, the conceptual map is not a genuine semantic map, in that it is not supposed to have cross-linguistic relevance. It has been developed on the basis of English data, and arguments have been proposed for its language-specific validity, but it has not been tested cross-linguistically. In this sense, the organization of the map opens up new perspectives for further research: it may be interesting to take the conceptual map into typology and investigate whether it also applies cross-linguistically.

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