

# The conceptual importance of grammar

## Knowledge-related rationales for grammar teaching

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Knowledge about Language (KaL) is an important part of L1 language education around the world. A controversial part of KaL is grammatical or syntactic knowledge, i.e., knowledge about the form, meaning and use of sentences and phrases. In the current international discourse on L1 grammar teaching, grammar is principally motivated by the desire to enhance students' literacy development, befitting the communicative turn in mother tongue education and following high quality research which has shown that contextualized grammar teaching can impact on students' writing development. However, there are also other potentially meaningful reasons to teach grammar, which remain underresearched and underdiscussed in curriculum discussions: (1) the general importance of language justifies that L1 speakers understand how their language works; (2) grammar teaching provides more insight into the workings of the human mind; (3) grammar teaching can be used to facilitate students' reasoning and stimulate their critical thinking abilities. These reasons for teaching grammar do not necessarily relate to literacy development; rather, they pertain to a general conceptual importance of knowledge about grammar. This paper explores these arguments and argues, partly based on empirical evidence from recent research, that knowledge-related rationales deserve a more prominent place in curriculum discussions about grammar teaching.

**Keywords:** grammar education, knowledge-related rationales, literacy-related rationales, conceptual importance, grammatical understanding, critical thinking

Several curriculum theorists have recently drawn attention to the important question what the role of knowledge should be in the curriculum (Deng, 2015; Young, 2013; Young & Muller, 2010). This question is at the heart of curriculum discussions across the globe (cf. Connely et al., 2008), and roughly two positions are

defended within this debate. One position is taken by those who believe that education should focus on teaching general skills (e.g., general thinking skills, collaboration skills or cross-cultural skills) rather than on subject content, which is believed to possess no intrinsic value (Deng, 2015). In such a position, the learner takes center stage (e.g., Chu et al., 2017), and knowledge is seen as a tool to facilitate these general skills.

Another position maintains that knowledge should in fact be regarded as a crucial component of curriculum theory, and that it is not the learner, but *the learner's entitlement to knowledge* that should be the point of departure for education (Hirsch, 2016; Young, 2013). This latter perspective can be said to relate to ideals of *Bildung* (Klafki, 1957; Zuurmond, 2020): the idea that knowledge can strongly contribute to developing a broad, involved and conscious perspective of the world.<sup>1</sup> Young (2013) has coined the much discussed term *Powerful Knowledge* to convey a similar idea, namely that such knowledge, which is disciplinary, systematic and different from students' everyday experiences, can elevate education to the development of learners' view on the world. It can be inferred from the description of notions such as powerful knowledge that knowledge must be interpreted broadly, and that it must not be understood as merely having facts at the heart of a curriculum. Rather, knowledge in such discussions relates to *understanding* how the world works (Baumberger, 2019). As Baumberger et al. (2016, p.1) point out, understanding is 'a central good that we try to realize when we think about the world', which surpasses factual knowledge as such (Grimm, 2012). Instead, understanding requires one not only to adequately deal with facts, but also to connect different facts in a meaningful way (Riggs, 2003), in which a student is able to explain, by means of inferring and reasoning, how one case relates to other cases, either factual or counterfactual (De Regt, 2009). In this paper, we therefore adhere to a broad interpretation of knowledge, closely related to *understanding*.

One might view the general skills versus knowledge dispute as a debate involving subordination: either knowledge is seen as subordinate, or even subservient to general skills in curriculum development, or general skills are seen as subordinate to knowledge. Of course, an absolute dichotomy between these two perspectives on curriculum development is difficult to maintain, as it does not fully do justice to the complex realities of education (Janssen et al., 2019). Moreover, some scholars argue that curriculum theory should transcend these two perspectives, and that it is the task of curriculum theorists to facilitate this goal (Janssen et al., 2019; Young, 2013, p.103).

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1. The notion of *Bildung* can thus be distinguished from that of *Ausbildung* ('professional training').

## 1.1 The Debate about Knowledge in L1 Language Curricula

In L1 language education, this broader educational discussion about the role of knowledge in the curriculum is mirrored in discussions about the place of explicit Knowledge about Language (KaL) – cf. Alderson and Hudson (2013). KaL plays a major role in international discussions about language education, and it is considered a key part of the curriculum in many current curricula, for example in Anglophone regions (Myhill, 2018), such as the United Kingdom (Alderson & Hudson, 2013; Myhill et al., 2012) and Australia (Macken-Horarik et al., 2018), in German speaking regions (Funke, 2018), Francophone regions (Boivin, 2018) and Spanish speaking regions (Fontich & García-Folgado, 2018).

While KaL can, in principle, deal with a large variety of topics (e.g., language as a social/historical/systemic/cognitive phenomenon) it is syntactic knowledge, also referred to as grammatical knowledge, that has been the primary object of fierce discussions that have been labeled ‘wars’ by some (e.g., Locke, 2010). Grammar or syntax (which is a part of the systemic knowledge about language) thus refers to aspects of form, meaning and usage of sentences and phrases, and it has been a part of language education in some shape or form ever since classical antiquity (Seuren, 1998).

However, through the years, the concept of ‘grammar’ has been perceived in different ways (see Van Rijt, 2020). For some (often the general public), grammar merely consists of prescriptive rules that govern the production of ‘correct language’ (cf. Milroy & Milroy, 1999). In this view, grammar teaching is usually justified by the effect it has on language proficiency, which in turn is then seen as producing correct language and avoiding errors. For others (in any case linguists), grammar consists of descriptive rules, describing actual language use, or even a system of abstract principles that explains patterns in language or language development (Hudson, 2004). In this view, grammar teaching is about gaining insight into the relation between language form, meaning and context of use. Although throughout this paper, we will use the term ‘grammar’ to refer to the second, more ‘scientific’ view, it should be borne in mind that some of the reasonings cited from the literature below may originate from the first, more traditional view.

As Fontich and Camps (2014) have noted, the controversy of explicit grammar teaching can largely be traced back to a single issue: the question of whether explicit grammar teaching could be ‘a useful tool for helping in progressively mastering verbal competence, especially writing skills’ (p. 599). There are several reasons for the fact that this perceived relationship between grammar and writing has been at the heart of the grammar debates in recent decades. Arguably the most important one is that societal developments led to the so called ‘communicative turn’ in language education (Bonset & Rijlaarsdam, 2004; Sawyer & Van de Ven,

2007), in which communicative skills were considered of primary importance, rather than grammar and literature, which generally were the principal components of language education in the decades before. The turn towards a communicative paradigm paved the way for grammar to be viewed differently than in the preceding period, in such a way that grammatical knowledge should – first and foremost – help students to advance their writing, or be banned from the curriculum altogether (or at least, significantly reduced).

Some educationalists hardly believe in the merits of explicit grammar teaching for the improvement of writing skills, whereas others consider it an invaluable part of the process (Fontich & Camps, 2014; Myhill, 2018). In either case, the teaching of grammar (or indeed, the banning thereof) is, in such instances, motivated by *literacy-related rationales*. Hence, grammar is, from such viewpoints, seen as a means to an end, and grammatical knowledge is therefore considered subservient to literacy development. In other words: grammar is only justifiably taught if benefits in reading and writing can follow from its teaching. The current scientific and educational discourse on L1 grammar teaching predominantly discusses grammar from literacy-related rationales. This is evidenced by the fact that most grammar education papers – by a long stretch – are informed by Halliday's Systemic Functional Linguistics (Halliday & Matthiessen, 2004, cf. Van Rijt et al., 2019a), which should 'first and foremost' be considered 'an in contexts' form of linguistic activity' (Bateman, 2017, p.14), and it therefore strongly (although not exclusively) focuses on human communication, sociocultural contexts and the role of language in texts or general discourse (cf. Butler & Taverniers, 2008; Kuiper & Nokes, 2014, p.65–85). In grammar teaching that is inspired by SFL, making active connections between grammar and writing is being encouraged, and there is now substantial empirical evidence to suggest that in-context forms of grammar teaching can indeed substantially enhance writing skills (Myhill et al., 2012; Myhill et al., 2018) or reflection on (written) language more broadly (e.g., Camps & Fontich, 2019; Watson & Newman, 2017). In addition, grammar teaching in the L1 has been justified because of potential benefits for L2 or foreign language learning (Bell et al., 2020), because of an added benefit for the development of orthographic skills (Chamalaun, 2019; Rastle & Davis, 2008) and for improved reading skills (Chipere, 2003; Funke et al., 2013). Due to space constraints, we will refer the reader to Van Rijt (2020, Chapter 1) for a more elaborate overview of such literacy-related rationales for grammar teaching in current educational discourse.

## 1.2 The Current Paper

In this paper, we will argue that this dominant literacy focus obscures sight of other potentially important reasons for grammar teaching, which consider grammar teaching valuable in itself, i.e., without necessarily being related to literacy. As current research has now made it fairly easy to claim that grammar teaching can impact on writing development, the place of grammar is easily justified in terms of curriculum development, as it seems hard to imagine that anyone would question the importance of writing (cf. Graham & Perin, 2007; MacArthur et al., 2016). In other words: currently, grammar is justified as a subservient skill to facilitate the more general skill of writing, rather than being inherently valuable.

However, grammar can – and in our mind, should – also be justified as an essential part of the curriculum without considering literacy development, as there are also important reasons to teach grammar that have no (immediate) bearing on reading and writing. Such reasons may be less obvious, and since some of these rationales have no immediate impact on everyday skills (such as writing), they may seem harder to defend on educational grounds. As previously outlined, we refer to such rationales for grammar teaching as *knowledge-related*.

In the present article, we will discuss three knowledge-related rationales: (1) the general importance of language justifies that L1 speakers understand how their language works; (2) grammar teaching provides more insight into the workings of the human mind; (3) grammar teaching can be used to facilitate students' reasoning and stimulate their critical thinking abilities. These knowledge-related rationales are of a different nature. The first two need to be carefully motivated for purposes of curriculum development, but whether or not grammar is considered sufficiently important based on such motivation is not dependent on empirical evidence, but rather on policy makers' convictions and beliefs (Hulshof, 2013). The third rationale, on the other hand, is much less a matter of personal beliefs, and all the more dependent on empirical evidence.

While the current paper is aimed at no language or educational context in particular, we will illustrate some points for the Dutch situation, although they will have wider resonance.

## 2. Knowledge-related rationales for Grammar teaching

Knowledge-related rationales for grammar teaching aim to 'transfer knowledge about language, that leads to the insight or realization of the importance of language as a valuable phenomenon' (Hulshof, 2002, p. 23), the goal of which is that 'students can make accurate statements about language phenomena or linguistic

issues' (ibid., p.23), and that they gain insights into the question how they and others around them produce utterances (Wolf, 2019). In the Netherlands, recent discussions about forming a new curriculum (e.g., Curriculum.nu, 2019) appear to favour knowledge-related rationales much more than in previous curriculum reforms (e.g., Meijerink, 2009). Similar shifts have occurred elsewhere (cf. Macken-Horarik et al., 2018; Myhill, 2018). It is therefore crucial to gain a deeper understanding of why L1 grammatical knowledge may be *valuable* in this respect (cf. Myhill, 2016, p.39). In other words: Why should students know about grammar if not for their language proficiency? In what follows, we will consider three knowledge-related rationales for grammar teaching we mentioned previously. In discussing the literature on these rationales, we will argue that there is a *conceptual importance* in the teaching of grammar.

## 2.1 The General Importance of Language Justifies that L1 Speakers Understand how their Language Works

Language should be considered as an inherently important topic. It is critical for humanity as a whole (Crystal, 1997), and plays a key role in the functioning of society (cf. Clark, 1996; Montgomery, 2008) and of individuals (Crystal, 1997). Because of the importance of language on all these levels, understanding how language operates (in which grammar plays an important role) can be considered a legitimate goal in its own right (Bonset & Hoogeveen, 2010; Hulshof, 2013; Van Rijt, 2020). Sapir (1933) articulates the importance of language for humanity as follows:

It is difficult to see adequately the functions of language, because it is so deeply rooted in the whole of human behavior that it may be suspected that there is little in the functional side of conscious behavior in which language does not play a part.

Indeed, it would be quite hard to imagine how humanity could function without having language at its disposal, and it has therefore been considered the ground-work upon which human singularities like art, science and religion are built (Mithen, 1996). Some even consider the invention and subsequent development of written language to be an astounding cultural achievement, and the single most important factor in the creation and perpetual development of modern civilization in all its aspects and sectors (Kraak, 2006, p.12), or as 'the measure of our lives' (Evans, 2014). The role of language in the functioning of society is equally evident, since language plays a vital role in literally every institution or organization, such as politics, the law, the media and health care (Renkema, 2004).

At a more personal level, language is essential in establishing and developing social identity (Mesthrie et al., 2013), being used (apart from direct communication) to express emotions, to control the environment and to play, just to name a few frequently listed functions (Crystal, 1997, 1998). For most people language comes so naturally that they hardly realize the importance of language in day to day life. The importance of language seems apparent to most people in a more general sense, though. In 2019, a large national study that investigated the Dutch identity (Sociaal en Cultureel Planbureau, 2019) revealed that the Dutch language was considered to be the most typical characteristic of the Netherlands, outscoring other culturally distinguishing items such as Koningsdag ('King's Day'), the Dutch flag, windmills or Rembrandt. In addition, the Dutch language was considered to be the primary contributor to a sense of belonging, again outscoring all other options. This is a perfect illustration of the fundamental meaningfulness of language. The crucial role of language justifies understanding how language operates at its various levels. This has led some authors to point to the cultural value of language (e.g., Hulshof, 2013; Coppen, 2013) which also means that *teaching how language works* is assumed to be of cultural significance. Objectives related to understanding, however, transcend cultural significance alone. Understanding how language works helps people to better understand the world around them, just as understanding the human body, the climate crisis (Collins et al., 2013) or economic inequality (Piketty, 2014) contribute to an understanding of our existence. Understanding can therefore not simply be reduced to matters of culture, nor can it be motivated by utilitarian motives alone.

Consider for instance understanding the human body. There may be some cultural value in understanding how it works, but knowing how the human body functions and how it influences the way in which we perceive and interact with the world clearly has meaning beyond any cultural aspects (Gibbs, 2006). In addition, while it may be useful to understand the body because that knowledge can then be utilized for medical or athletic purposes, most of us will hardly 'need' a detailed understanding of it. This suggests that the importance of understanding the human body cannot simply be reduced to utilitarian motivations. The same can be said for understanding language: its importance exceeds the cultural significance, but it should not just be studied for the purposes of using it (utilitarian perspective). In that sense, understanding how language works might be said to have *conceptual value* over cultural value: it is important for the conceptualization of our existence.

It is of consequence to note that if understanding language is the objective, then grammar (i.e., syntax) is only a part of the required knowledge base. This rationale for grammar teaching can thus also be seen as a rationale for the teaching of linguistics more broadly (cf. Denham & Lobeck, 2010; Hulshof & Hendrix,

2010), in which insights from other linguistic disciplines, such as psycholinguistics, sociolinguistics or discourse studies can be a part of the curriculum, which has proven its educational value (Denham, 2020; Hendrix, 1997; Mulder, 2007; Pronk & Sweep, 2019). Due to space constraints, we refer the reader to Denham (2020) or Denham and Lobeck (2010) for more details on such a broader linguistic perspective. We also refer the reader to Hudson (2004, 2008) for the advantages linguistics may offer in the broad sense to education (and vice versa).

## 2.2 Grammar Teaching Provides More Insight into the Workings of the Human Mind

Another knowledge-related rationale for grammar teaching is that grammar education can deepen our understanding of the human mind (Behrens, 2018; Hulshof, 2002; Zwart, 2010). This may seem like a peculiar rationale at first glance. To properly understand this rationale, we need to devote some space to current debates in linguistics about the relationship between language and human cognition. In light of the topic of this article, we do not aim to give a full account of these debates, but present a very succinct version of (important parts of) the debates instead. Interested readers are referred to the references mentioned here to gain a deeper understanding of these matters.

What is clear to linguists, is that language is inherently related to the human mind, although there is some controversy about the nature of this relation. Perhaps the greatest controversy in the study of modern linguistics and behavioural sciences is the question whether language (or more specifically, some language acquisition device) is innate (i.e., given to us at birth) or that language emerges from communication (i.e., arising from general cognitive mechanisms) (Evans, 2014; Hagoort, 2019; Harley, 2008). A related question is whether language can be identified as uniquely human, or whether it is also found in other animals. For the first forty or fifty years since Chomsky wrote his famous work *Syntactic Structures* (1957), many linguists and behavioural scientists have, following Chomsky's lead, attempted to argue that language is indeed innate in its base (i.e., the Language Acquisition Device), and that it is a uniquely human ability (e.g., Chomsky, 1966, 1975, 2002, 2010; Gallistel, 2007; Hockett, 1966; Pinker, 1994) partly thanks to new discoveries about humans' ability of recursion and discrete infinity (cf. Tiede & Stout, 2010). In recent years in particular, though, researchers have begun to question the language-innateness hypothesis (e.g., Evans, 2014; Croft & Cruse, 2004; Goldberg, 2006; Tomasello, 2003, 2005), presenting increasingly more evidence in favour of the claim that the language learning capability is not some separate function of the human brain and that the once clear-cut distinction between animal communication systems and human language abilities is arguably not



so clear-cut after all. While some authors have labelled the language-innateness hypothesis a myth (e.g., Evans, 2014), debates on the role of language in human cognition remain far from settled. What all linguists do share, regardless of their background or position within the language innateness debate, is the realization that language must be seen as a cognitive mental system (Goldberg, 2003, 2006; Hagoort, 2019; Hoffmann & Trousdale, 2013), which, even though it shares important characteristics with some forms of animal communication, is situated at a very different level of complexity (Evans, 2014, p. 28; Deacon, 1997; Hurford, 2007, 2012). Language can, at least to an extent or in its order of magnitude, be said to be uniquely human. In addition, while it is now clear that there is considerable variation among the world's roughly 6000 languages (Evans & Levinson, 2009), linguists agree that there are many recurring grammatical patterns in languages throughout the world (Christiansen & Chater, 2008; Dryer & Haspelmath, 2013), some of which may be related to underlying human cognition (Evans, 2019; Strickland, 2017). From this premise there follows the proposition that language can reveal a lot about the human mind, and that it can tell us something about how we are different from other animals. Teaching grammar can thus serve to educate students about matters of cognition, at least if it goes beyond traditional forms of parsing alone and focuses on insights from modern linguistics. The linguist Jan-Wouter Zwart (personal communication, 18 December 2015) phrased this sentiment perfectly:

This is basically what Chomsky has put into motion, that if we engage in cognitive science, then we are not talking about the world around us, but instead, we are talking about our own abilities. What we can do. And language is the most suitable way to do this – which has grown that way historically – because we know so much about it, we have applied so many analyses to language that we are able to arrive at very concrete proposals about those kinds of cognitive capabilities. (...) The object of study has changed. It is not just the language anymore, it is man. And it is no longer about how language should be, but about how it is.

[Translated from Dutch by the authors]

In other words: studying language and grammar specifically can provide an understanding of how we humans function conceptually and cognitively, and ultimately contribute to the question what it means to be human. In fact, it is even believed that language is a system that directly reflects the conceptual organization of the mind (Bybee & McClelland, 2005; Evans, 2019, p. 14; Strickland, 2017). By way of illustration, Evans and Green (2006) show that people who are asked to describe a scene in which a cat is sitting on a chair, will typically use sentences such as *The cat is/sits on the chair*, but they will never use sentences such as *The chair is under the cat* to describe the same objective reality (Evans & Green, 2006,

p.17–18), even though the latter sentence is grammatically correct. This is because human cognition is focused on things that move, and our cognitive systems thus distinguish between a figure and its background (the so called *figure-ground distinction*, cf. Talmy, 1978). This distinction is reflected in our grammatical preference to place the cat in sentence-first position, which is a well-known position to express prominence (Evans & Green, 2006, p.17). In addition, animate entities (such as the cat) are more likely to be expressed as subjects than non-animate entities (Comrie, 1989; Van Bergen, 2011). There are thus direct links between understanding grammar and understanding the human mind, which can be seen as a rationale for the teaching of grammar. From this point of view, understanding more about grammar means understanding more about ourselves.

### 2.3 Grammar Teaching Can be Used to Facilitate Students' Reasoning and Stimulate their Critical Thinking Abilities

In the history of language education, grammar teaching has often been seen as a means to facilitate logical thinking (e.g., Benjamin & Oliva, 2007), both internationally and in the Netherlands specifically. In a study from 1979, Tordoir and Wesdorp investigated Dutch teachers' beliefs about grammar teaching at the time. Among other things, they found that 65% of the interviewed teachers believed that grammar teaching helped students to develop their logical thinking. In fact, the idea that grammar can be used to strengthen logical thinking has been at the base of the development of grammar teaching in Germany and the Netherlands over the past 200 years (Hulshof, 2014). Outside of the Dutch (and German) context, grammar and linguistics have been argued to possess value for developing students' critical or scientific thinking skills (e.g., Hudson, 2004; Honda & O'Neill, 1993, 2007), which may be seen as an extension of the argument that grammar teaching may strengthen logical thinking. Hudson (2004), Moesker and Das (2010) and Verhagen (2010), among others, argue in particular that language is very suitable for stimulating scientific thinking, because, as Hudson (2004, p.123) puts it: 'vast amounts of data are easily available through introspection or observation', making it easy for young learners to formulate and test hypotheses about language phenomena. It is partly for this reason that linguistic knowledge (of which grammar is an important part) is said to have 'propaedeutic value', being particularly suited to introduce students to scientific modes of thinking (cf. Bennis, 1991; Hulshof & Hendrix, 1996; Schultink, 1969). And, indeed, Honda (1994) has shown that a short grammar course in which students induced rules from examples can have a powerful impact on their scientific reasoning ability. Such reasoning ability can best be fostered in a subject-specific context such as

grammar education, rather than in a general thinking skills programme (Moore, 2004; Renaud & Murray, 2008).

### 2.3.1 *Grammatical Metaconcepts and Grammatical Reasoning*

More recent empirical research has also pointed to gains in students' ability to reason about grammatical problems as a result of metaconceptual grammar teaching. Such grammar teaching emphasizes the teaching of larger concepts or principles of language (which are referred to as *metaconcepts*), before refining that understanding with specific concepts that are subordinate to that metaconcept (cf. Van Rijt, 2020). It has for example been suggested that students should first develop an understanding of the metaconcept of valency (i.e., the idea that verbs serve out roles in both meaning and form, cf. Perini, 2015) before moving on to understanding related traditional concepts such as subject, object or adverbial (Van Rijt, 2016, 2020).

The idea of first developing a better understanding of broad categories has also been proposed in science education. Assaraf et al. (2013) for instance, argue that students who are taught about the human body often fail to develop an overarching understanding of the system that the human body is, because most education is focused on 'the components that comprise the system rather than on the integrated processes that build the system' (p. 34). They thus propose an approach that takes the metaconcept (our terminology) of *Homeostasis* as its point of departure, from which other concepts related to the human body can then be understood. This potentially leads to a more complete understanding of the human body, and counters compartmentalized learning. Others have also suggested that as our world is governed by complex systems, education should emphasize those, and contribute to students' understanding of such systems instead of merely examining the system's components (e.g., Goldstone & Wilensky, 2008; Wilensky & Reisman, 2006; Hmelo-Silver & Pfeffer, 2004). As Hmelo-Silver and Pfeffer (2004, p. 129) maintain, 'Making sense of complex systems requires that a person construct a network of concepts and principles about some domain that represents key phenomena and the interrelationships among different levels of the system, whether it is macro to micro or structure to function.' Thus, it appears that a greater understanding of the whole system rather than simply understanding its components is what separates experts from novices (ibid., 2004).

Language in the broad sense and syntax in the more narrow sense should certainly be understood as complex systems. Like other complex systems, language is comprised of multiple levels of organization (e.g., phonology, morphology, syntax, semantics, pragmatics) that often depend on local interactions. It would therefore make sense to treat grammar *pedagogically* as a complex system as well, making it the objective for language teachers to provide an understanding

of broader categories of the system (e.g., *valency*, *predication*) before refining that understanding with more fine-grained concepts (e.g., *direct object*, *subject complement*). In this process, properties of categories and relations between categories are especially important for an understanding of the complete system. Such understanding seems essential for reasoning about grammar. As we will show below, two recent intervention studies have shown that students' grammatical reasoning significantly improved as a result of metaconceptual interventions.

### 2.3.2 *Metaconcepts and Grammatical Reasoning at the University Level*

In an exploratory study, Van Rijt et al. (2019b) found that first-year university students' grammatical reasoning strongly benefitted from a metaconceptual intervention (for precise details surrounding the intervention, we refer the reader to the original article). To measure students' reasoning progression, a series of grammatical problems was developed that students had not seen elsewhere. The students were tasked to tackle these grammatical problems by reasoning about them in writing, both before and after the intervention. Two of these problems (target items) could be tackled by reasoning based on linguistic metaconcepts, whereas two other problems (filler items) could not. This allowed the researchers to examine whether students' progress may have been due to a testing effect, which is particularly important in research designs that do not involve a control group (Shadish et al., 2002). Each reasoning was rated on a 5-point Likert scale by a panel of four experienced professors of linguistics. Two types of knowledge were investigated in the student reasonings ( $N=180$ ): declarative knowledge (i.e., knowledge about (meta)concepts) and procedural knowledge (i.e., knowledge about linguistic procedures). In terms of declarative knowledge, students used the following types of concepts in various degrees, either implicitly (describing the concept without explicitly labelling it) or explicitly: metaconcepts (e.g., *valency*), concepts from modern linguistics (e.g., *agent*) and traditional concepts (e.g., *subject*). As far as procedural knowledge was concerned, students either used rules of thumb, inferences or linguistic manipulations. Each of these variables linked to either declarative or procedural knowledge was related to the quality of students' grammatical reasoning, making this study the first to empirically explore linguistic reasoning within an educational setting. Statistical analyses revealed that students' reasoning quality improved on the target items, but not on the filler items, thus making a testing effect less likely. Not only did the average quality of their grammatical reasoning increase greatly as a result of the intervention ( $d=0.62$ ), their use of linguistic metaconcepts in addressing the grammatical problems also significantly increased ( $d=0.70$ ). Interestingly, while students did not show increased signs of applying linguistic manipulations as a result of the intervention, they did show a tendency to rely less on rules of thumb ( $d=0.42$ ). A

multilevel regression analysis explaining 32.1% of all variance in reasoning quality (cf. Van Rijt, 2020) revealed that the following variables were statistically significant predictors of grammatical reasoning quality, in order of magnitude: (1) explicit metaconcept use; (2) inferences; (3) linguistic manipulations and (4) explicit traditional concept use. Implicit concept use was not positively rated by the linguistics experts. The study thus showed for the first time that short meta-conceptual interventions can have a powerful impact on grammatical reasoning quality.

### 2.3.3 *Metaconcepts and Grammatical Reasoning in Secondary Education*

While the results from the intervention study for university students were encouraging in itself, there was still no direct evidence that secondary school students could benefit from similar interventions. In a follow-up intervention study (Van Rijt et al., 2020a), 14 year old pre-university students ( $N=119$ ) and their teachers from five secondary school classes participated. The teachers worked with an intervention that was similar in spirit to the one presented to the university students. To accommodate these specific students' needs, the intervention (4 lessons of 50 minutes) was underpinned with a set of design principles from the literature: (1) explicit metaconcepts were the main target of the lessons, and these were related to concepts from traditional school grammar; (2) students' language intuitions about metaconcepts were stimulated by employing guided inductive assignments; (3) students were taught how to deal with grammatical uncertainty; (4) exploratory talk was used to facilitate multiperspectivity towards grammatical problems; (5) teachers adopted specific scaffolding strategies befitting of the aforementioned design principles. The intervention focused on four related metaconcepts: *predication*, *valency*, *complementation* and *modification*, and it covered all of the related traditional phrases and parts of speech (e.g., *subject*, *direct object*, *adverbial*). To measure students' reasoning progression, another set of grammatical problems was developed, consisting of target items and filler items in a similar fashion as in the intervention study described for the university context. The quality of students' reasonings ( $N=684$ ) was rated by means of comparative judgement (Lesterhuis et al., 2016). 16 experienced raters, ranging from secondary school teachers to teacher educators and linguists, evaluated the reasonings. Each reasoning was then analysed separately along two axes: the reasoning's coherence and the use of linguistic metaconcepts. This resulted in four categories that a reasoning could fall in, based on Havekes' (2015, p.70) classification of historical reasonings: (1) no grammatical concepts (–coherence, –(meta)concept use); (2) traditional concepts related to each other (+coherence, –metaconcept use); (3) blind linguistic metaconcepts (–coherence, +metaconcept use); (4) metaconcepts related to traditional concepts (+coherence, +metaconcept use). An ANCOVA

analysis controlling for the effect of the teacher revealed that there were significant quality differences between these four reasoning categories. Category 2 and 4 were highly preferred by the raters, whereas category 1 and 3 reasonings were disapproved. After the intervention, the relative number of category 1 reasonings diminished, and several reasonings (17%) ended up in category 4, showing that at least some students had managed to understand these metaconcepts well enough to incorporate them into their grammatical reasoning. However, some students did not manage to acquire these metaconcepts as successfully, and they started using them 'blindly' in their reasoning, which is indicative of either misunderstanding the metaconcept completely, or of being on a conceptual journey, of which an intermediate stage might be that students use the metaconcepts inadequately. In addition, students' overall reasoning quality on the target items increased significantly following the intervention ( $d = 0.46$ ), whereas their reasoning quality on the filler items remained constant, indicating again that a testing effect was unlikely. A later quasi-experimental study (Van Rijt, 2020, Chapter 6), involving 196 pre-university students and adopting a switching replications design to control for testing effects, found similarly positive results for a metaconceptual intervention.

Another question altogether is whether teachers hold positive attitudes towards modes of grammar teaching which emphasize the importance of grammatical knowledge in itself. The results of a national survey from the Netherlands suggest that this is indeed the case for this particular context (Van Rijt, Wijnands & Copen, 2020b). While teachers' own practices are still fairly traditional overall (i.e., revolving around parsing isolated sentences based on rules of thumb), they see clear advantages of metaconceptual grammar lessons, valuing in particular their focus on insights and understanding (especially for higher levels of education, e.g., pre-university education). At the same time, most teachers denounced traditional practices when given the choice between traditional lessons and metaconceptual ones, criticizing them precisely for their inability to convey real understanding. In other educational contexts, such as Australia, teachers also appear to value initiatives in which they cooperate with linguists to achieve insightful grammar or linguistics lessons (Mulder, 2011).

In summary, there are good indications that short metaconceptual interventions, which focus on underlying insights and on linguistic reasoning, can lead to improved reasoning outcomes. As the ability to reason about grammatical problems can be seen as an indicator of grammatical understanding (Van Rijt, 2020), these studies are related to all of the knowledge-related rationales, albeit in varying degrees.

### 3. Discussion

As we have argued above, knowledge-related rationales can enrich the current debates about the role of grammar in L1 education. At present, most of the research adheres to literacy-related rationales for grammar teaching, and consequently, educational policy and curriculum discussions principally adopt these rationales. This focus has obscured view of other relevant and valuable goals for grammar teaching, which are more in line with ideals of *Bildung* or Powerful Knowledge. As a consequence, there is only a very limited amount of empirical research that addresses grammar from knowledge-related rationales, even though knowledge-related rationales can greatly contribute to an enriched language curriculum in which *language awareness* takes center stage (Carter, 2003; Frijns et al., 2018; Svalberg, 2016; Van den Broek, 2020). In such curricula, where grammatical knowledge is not simply motivated from communicative needs alone, learners are taught to develop ‘an enhanced consciousness of and sensitivity to forms and functions of language’ (Carter, 2003), from teachers who are (ideally) aware of ‘the underlying systems of the language that enable them to teach effectively’ (Thornbury 1997, p.x). Considering knowledge-related rationales can, in our view, contribute to moving the language curriculum towards such broader goals of language education. At the same time, there is no reason to abandon literacy-related grammar teaching. We argue that there is no principial boundary between these two perspectives towards grammatical knowledge, and that the richest language curricula relate to both literacy and knowledge-related rationales. This seems to be the only way to achieve a language curriculum in which learners can consciously use and think about such an important topic as language. However, there are several difficulties associated with changing educational practice in such a way that knowledge-related rationales are more acknowledged in (talking and thinking about) grammar teaching.

First of all, teachers’ own (epistemic) beliefs and existing practices can inhibit them from thinking about grammar differently (see Elsner, 2020; Wijnands et al., 2021). While Dutch teachers appear to be open towards a type of grammar teaching that values grammatical understanding in itself (i.e., metaconceptual lessons, cf. Van Rijt et al., 2020b), their own grammatical knowledge of such metaconcepts appears to be lacking (Van Rijt et al., 2019c, 2021), which is a shortcoming that is documented across different educational settings (e.g., Alderson & Hudson, 2013; Sangster et al., 2013). It seems fair to assume that limitations in subject knowledge can influence the way in which teachers think about and justify a topic such as grammar education. In other words: a teacher who is not very skilled at grammar may have a hard time convincing him or herself of the importance of such knowledge. Moreover, their own experiences as learners may have influenced

their professional beliefs as language teachers (Phipps & Borg, 2009). If grammar has been motivated to them from literacy-related rationales alone, which is befitting of the dominant paradigms in language education over the past decades (cf. Van Gelderen, 2010), they are likely to hold similar views in their own teaching.

In addition, teachers are reported to adjust their teaching practices based on expectations from the learner (Borg, 1998; Burgess & Etherington, 2002; Eisenstein Ebsworth et al., 1997) and most learners (as well as other members of the general public) seem to expect that grammar teaching contributes to writing development (Van Rijt, 2020, Chapter 1). Teachers, educators and curriculum developers should take such matters into account when discussing the place of grammatical knowledge in the curriculum.

A final matter we wish to draw attention to is the intricate relationship between academic disciplines (e.g., theoretical linguistics, Dutch Language and Literature) and the related school subjects (Van der Aalsvoort, 2016). In previous discussions about curriculum development in the Netherlands, in which academics attempted to enrich existing language education with linguistic knowledge without considering literacy development *per se*, some teachers and curriculum developers felt 'overruled' by academics and therefore rejected the introduction of linguistics into the Dutch curriculum (Van der Aalsvoort & Kroon, 2015). If fruitful discussions about grammar, in which knowledge-related rationales are acknowledged as valuable, are to be held, the intricate relationship between schools and universities needs to be continuously nurtured with great care (Hulshof & Van Rijt, 2020).

To sum up: as this paper has argued, L1 grammar education can readily be motivated from knowledge-related rationales, as long as such education focuses on underlying understanding and grammatical reasoning. Discussions about the place of grammar in the language classroom could be deepened if such rationales are considered in educational policy and research, which has the potential to influence existing grammar teaching practices.

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