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Children's reading difficulties, language, and reflections on the simple view of reading

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ABSTRACT

Reading comprehension is a complex task which depends on a range of cognitive and linguistic processes. According to the Simple View of Reading, this complexity can be captured as the product of two sets of skills: decoding and linguistic comprehension. The Simple View explains variance in reading comprehension and provides a good framework to guide the classification of reading disorders. This paper discusses how weaknesses in either or both of components of the Simple View are implicated in children's reading comprehension difficulties. It concludes with reflections on the strengths and limitations of the Simple View as a theoretical and practical framework to guide our understanding of reading comprehension and its development.

The ultimate goal of reading is comprehension: for the reader to reconstruct the mental world of the writer. As skilled readers, this usually feels pretty effortless and comprehension flows naturally as we read along. This sense of ease is misleading, however, as it belies the complexity of what we do as we read, even when a text is simple and straightforward. A whole range of cognitive and linguistic operations are at play, from identifying individual words through to making inferences about situations that are not fully described in the text (Castles, Rastle, & Nation, 2018). This complexity means that finding a simple answer to questions like "how does reading comprehension develop" and "why does it sometimes fail" quickly becomes an impossible task.

Against this complexity, enter the Simple View of Reading. This was first described by Gough and Tunmer in 1986, and supported with data in a follow-up paper by Hoover and Gough (1990). Together, these two papers have been cited over 5000 times in the academic literature (source: Google Scholar, January 2019) and the influence of the Simple View has been building in educational policy and practice (e.g., Rose, 2006). I was fortunate to begin my career as a post-doc working with Maggie Snowling, employed on a project inspired by the Simple View—and from our first paper onwards (Nation & Snowling, 1997), it provided the framework within which we set our work. Over 20 years later, my goal in this paper is to consider the question "why do some children find reading comprehension difficult" from the perspective of the Simple View, and by discussing some of the research it has motivated.

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I begin by introducing the Simple View of reading and outlining some of the evidence that supports it. Part II will consider reading comprehension in children who struggle to read words. In Part III, attention turns to poor comprehenders—children who read words adequately but nevertheless have reading comprehension difficulties. Finally, in Part IV, I offer some reflections on the Simple View of reading and consider its many strengths, as well as some limitations.

Part I: introducing the Simple View of reading

What is the Simple View?

Imagine yourself a fluent speaker of a foreign language but with no knowledge of its written form. Reading comprehension would fail as you would have no ability to access meaning from print. If the text was read to you, however, understanding would follow, via listening. An alternative scenario is equally easy to imagine. It would be quite possible for you to learn to assign acceptable pronunciations to words printed in a foreign language, but this would not mean that you were able to comprehend what had been written in that language.

The Simple View of reading (Gough & Tunmer, 1986; Hoover & Gough, 1990) elegantly captures the essence of these scenarios by stating that reading comprehension is the product of two sets of skills, decoding and linguistic comprehension (RC = D x LC, illustrated in Figure 1). We will return to definitions shortly but for present purposes, decoding can be defined as the ability to identify words in print and linguistic comprehension as the ability to understand spoken language. The logical case for the Simple View is clear and compelling: both decoding and linguistic comprehension are necessary for reading comprehension and neither alone is sufficient. Like a fluent speaker of a foreign language who has never seen it written down, if a child cannot decipher words from print they have no facility to understand written language, no matter how sophisticated their understanding in the oral domain might be. Similarly, being able to decipher words brings no guarantee that a child will understand what it is they have read. The Simple View assumes that once written input is decoded,reading comprehension is achieved via exactly the same processes used to understand spoken language. If those processes are absent or not working well, reading comprehension will also fail, even if the material has been decoded perfectly. The Simple View also states that the relative contributions of decoding and linguistic comprehension to reading comprehension should change

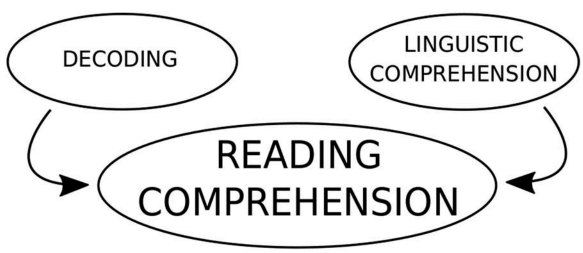

Figure 1. The Simple View of reading.

over time. Early on, reading comprehension is highly constrained by limitations in decoding. As children get older and decoding skills increase, the correlation between linguistic comprehension and reading comprehension strengthens. This reflects the fact that once a level of decoding mastery has been achieved, reading comprehension is ultimately constrained by how well an individual understands spoken language.

It is hard to argue with the underlying principles of the Simple View, or with the evidence base that now supports it. For example, Lervag, Hulme, and Melby-Lervag (2018) followed nearly 200 Norwegian children as they learned to read. They measured decoding and linguistic comprehension in multiple ways to form latent variables to capture each construct. Nearly all of the variation in reading comprehension at 7.5 years was captured by the two constructs, decoding and linguistic comprehension. Other studies taking a similar approach have found the same (e.g., Language and Reading Research Consortium [LARRC] & Chui, 2018; Hjetland et al., 2019; Lonigan, Burgess, & Schatschneider, 2018) and findings are robust across alphabetic (Florit & Cain, 2011) and non-alphabetic writing systems (Ho, Chow, Wong, Waye, & Bishop, 2012). There is also evidence to support the changing pattern of associations between decoding, linguistic comprehension and reading comprehension over time, with the correlation between linguistic comprehension and reading comprehension strengthening, as children's decoding skills increase (Catts, Adlof, Hogan, & Weismer, 2005; García & Cain, 2014; LARRC, 2015). Taken together, this evidence base provides overwhelming support for the Simple View, including the principle that it "does not deny the complexity of reading, but asserts that such complexities are restricted to either of the two components" (Hoover & Gough, 1990, p. 150).

Defining decoding and linguistic comprehension

What exactly is meant by "decoding" and "linguistic comprehension"? Starting with decoding, this has been operationalised in different ways in different studies. Some experiments have compared words and nonwords while others have investigated whether fluency is a better index than accuracy (e.g., Adlof, Catts, & Little, 2006; LARRC, 2015). Going back to the original article, it is clear that Gough and Tunmer (1986) themselves grappled with how best to define decoding. They explained that it can refer to the overt "sounding-out" of a word (sometimes termed phonological decoding or alphabetic decoding), perhaps as measured by nonword reading. But, they argued, this is not what good reading comprehension demands. Instead, comprehension in skilled readers depends on high quality input from a word recognition system that identifies words quickly and precisely (Perfetti, 2008). For the Simple View to adequately describe skilled reading, "decoding" needs to be defined and measured by something that captures this fluency and expertise. At the same time however, this definition does not work for children at the outset of learning to read as their word recognition system is not yet in place and reading is far from fluent and expert. What needs to be captured by the term "decoding" is dependent on the reading level of the individual.

At the heart of this issue is the need to consider learning and development. The beauty of the Simple View is that it explains variation in a way that is timeless: the equation RC = D x LC works for beginning readers as it does skilled readers, assuming the constructs have been measured appropriately. Critically however, the Simple View does not, on its own, explain how development happens—how children move from overt and laborious phonological decoding to reading words effortlessly and fluently.

For that, we need focussed and precise cognitive models that are developmentally informed. There is consensus that phonological decoding provides the initial foundation for learning to read words in English (e.g., Ehri, 2005; Share, 1995). From this starting point, children gradually accumulate orthographic knowledge via reading experience. This is a slow process of building expertise through which children harness their powers of perception, memory and language to learn and to generalise (see Castles et al., 2018). The Simple View does not explain in detail how any of this is achieved. Nor does it intend to. Instead it provides a theoretical framework to help us *understand variation* in reading comprehension across individuals at any particular time-point. How "decoding" is defined and measured needs to reflect the appropriate developmental time-point, and also familiarity with the words being read. Learning is likely to proceed in an item-based fashion, so that at any point in time a person may be reading some words slowly and only with great effort, while other words are read rapidly and efficiently with less reliance on phonological decoding (Castles & Nation, 2006; Share, 1995).

Let us now turn to the other component of the Simple View, linguistic comprehension. This was defined by Hoover and Gough (1990, p. 131) as "the ability to take lexical information (i.e., semantic information at the word level) and derive sentence and discourse interpretations". At a descriptive level this captures exactly what has to happen for reading (and language) comprehension to be successful. But how should linguistic comprehension be measured? A common approach has been to use listening comprehension, typically measured using a reading comprehension test but one that has been adapted so that children listen to the text rather than read it themselves. Some studies have argued that another factor, be it vocabulary, inference-making or working memory, makes a direct contribution to reading comprehension (e.g., Oakhill & Cain, 2012; Ouellette & Beers, 2010; Tunmer & Chapman, 2012). A different approach has been to construct a latent variable that taps linguistic comprehension in a broad sense, drawing on multiple indicators. For example, Hjetland et al. (2019) formed a single factor from measures of vocabulary, grammar, listening comprehension and verbal working memory. In line with the central tenet of the Simple View, variations in performance on this latent factor, in combination with variations in decoding, predicted almost all of the variation in children's reading comprehension at 7 years of age. There is also good evidence that variation in listening comprehension is itself a consequence of variation in underlying oral language. Lervåg et al. (2018) assessed 7.5 year-olds' vocabulary, grammar, verbal working memory and inference making skills. Together, these abilities predicted the children's listening comprehension.

Drawing across these studies, a strong case can be made that linguistic comprehension is broadly captured by listening comprehension, that listening comprehension itself subsumes children's vocabulary, grammar and language processing abilities and that these abilities (along with decoding) predict reading comprehension (LARRC & Chui, 2018; Foorman, Petscher, & Herrera, 2018; Hjetland et al., 2019; Lonigan et al., 2018). As per our discussion of decoding, however, this does not explain how reading comprehension happens, nor how it develops. Comprehension is not typically a verbatim record of what's been read, replicating its form and structure. Instead, as people read or listen, they build a mental model, sometimes called a *situation model*, culminating in a rich interpretation of the text that goes beyond what is explicitly stated. The text is the substrate that allows the reader to pull in relevant information, including, for example, the meanings of words, rules of syntax, background knowledge and an appreciation of how the world works. This information is then processed to make connections, draw inferences and construct intended meaning. The Simple View does not tell us how any of this achieved. For that, once again we need to look to detailed cognitive models. An important lesson from the extensive literature on reading comprehension is that it is not one thing that can be measured by a single indicator. Instead, reading comprehension is the product of a complex set of cognitive and linguistic factors operating across a text (for discussion, see Castles et al., 2018; Perfetti & Stafura, 2014), in interaction with the nature of the text and the purpose of the reading situation.

This discussion of definitional issues is not to say that the Simple View is false or limited as a framework to help us understand variation in reading comprehension. On the contrary, the Simple View is extraordinarily successful in this regard. When measured comprehensively and reliably, variations in decoding and linguistic comprehension capture individual differences in reading comprehension almost perfectly (Hjetland et al., 2019); this means that the terms decoding and linguistic comprehension have utility, if we accept that they denote complex constructs rather than explaining a particular cognitive process. At the same time, however, to move us beyond capturing variance to understand how cognitive and linguistic processes happen—and why they might go awry in children with poor reading and language – we need to attend to finer level definitions. In keeping with the principles of the Simple View, I use the terms decoding and linguistic comprehension in a neutral way throughout this paper as labels to note "things to do with identifying words" and "things to do with understanding spoken language" respectively.

Varieties of reading disorder within the Simple View

Gough and Tunmer (1986) used the Simple View to classify different types of reading problems. To illustrate, Figure 2 shows decoding and linguistic comprehension plotted orthogonally. Individuals can be placed into this multidimensional space according to their abilities on tasks that tap each of the two constructs.

For children falling in quadrant A, reading comprehension is constrained by poor decoding, whereas poor linguistic comprehension constrains those in quadrant D. Quadrant C captures

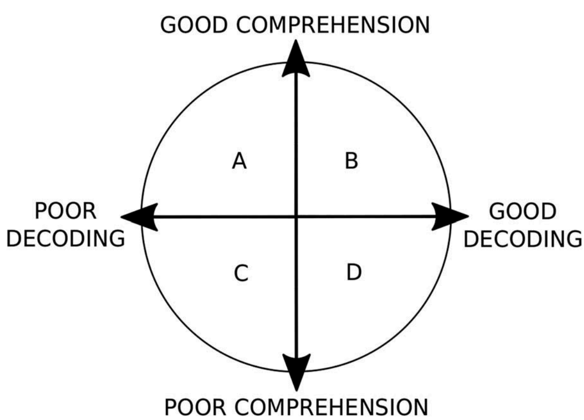

Figure 2. Classifying reading disorders within the Simple View of reading.

children who are poor at both decoding and linguistic comprehension. The logic of the Simple View is that all three varieties of reading disorder—termed dyslexia, hyperlexia and garden-variety poor reader in the original paper—result in poor reading comprehension but for different reasons. Nomenclature may vary, but there's plenty of evidence for these distinct reading profiles. It's rare to see mention of "garden-variety" poor readers in the more recent literature, but children with co-occurring dyslexia and language impairment are typically plotted in quadrant C (Bishop & Snowling, 2004; Catts et al., 2005). This quadrant is discussed in the next section, along with quadrant A ("classic" dyslexia). Turning to quadrant D, there are complexities with the term hyperlexia (Nation, 1999). That is not to say that a quadrant D reading profile does not exist. These children are more typically described as poor (or less skilled) comprehenders. We will return to discuss quadrant D in Part III.

Part II: reading comprehension in children with poor decoding

Reading comprehension tends to be low in children and young people with dyslexia (e.g., Ferrer et al., 2015; Shaywitz et al., 1999). This is considered a direct consequence of poor decoding, and dyslexia is usually associated with quadrant A in the Simple View (e.g., Gough & Tunmer, 1986; Stanovich & Siegal, 1994). Rather surprisingly, however, few studies have investigated the nature of reading comprehension in dyslexia in much detail. Bruck (1990) assessed reading comprehension in a group of adults who had a history of developmental dyslexia. Although the mean performance of the group was low-average (centile score of 41), there was huge variability in performance, with centile scores varying from 6 to 97. This shows that some children with dyslexia go on to make excellent progress in reading comprehension while others do not. Comparing those adults with good vs. poor reading comprehension, Bruck (1990) found no differences in word or nonword reading. However, the two groups did differ in vocabulary: poor reading comprehension was associated with vocabulary deficits whereas good reading comprehension was not. This finding can be accommodated within the Simple View, on the assumption that while all of the participants had poor decoding, only a subset (those with low vocabulary) also had poor linguistic comprehension. Arguably, as decoding skills strengthened through development, adults with good vocabulary (quadrant A) were able to make gains in reading comprehension whereas those with low vocabulary (quadrant C) did not.

Bruck's study tells us that some people with a diagnosis of dyslexia also have broader language problems. These problems are not unusual, with weaknesses in vocabulary, grammar and discourse-level processing being seen in many studies (e.g., Catts, Fey, Tomblin, & Zhang, 2002; McArthur, Hogben, Edwards, Heath, & Mengler, 2000). There has been a tendency to consider these broader language problems as a consequence of the deficit in phonological processing that underpins dyslexia, or of reading failure itself. For example, rather than a genuine problem with grammar, poor performance on a test of complex syntax might be a consequence of a phonological processing bottleneck disrupting working memory (e.g., Shankweiler et al., 1995). Or, if dyslexic children read less, they have less opportunity to build vocabulary via reading, such that vocabulary deficits emerge over time (Stanovich, 1986). Although these factors are likely to be at play, it is now abundantly clear that they are not the whole story. First, in adults with a history of developmental dyslexia, oral language accounts for direct variance in reading comprehension, even when decoding and phonological skills are controlled (e.g., Ransby & Swanson, 2003). Stronger evidence comes from family risk studies. These have consistently found that children who go on to receive a diagnosis of dyslexia in mid-childhood show language difficulties as infants and toddlers, well before reading failure could exert its influence (for meta-analysis across 21 independent studies and 95 articles, see Snowling & Melby-Lervåg, 2016). These findings confirm poor language as a precursor; they also add to the growing evidence base that sees low language as an important factor within a complex multiple risk model of the disorder (Snowling & Melby-Lervåg, 2016; Pennington, 2006). Such evidence also forces us to consider the overlap between dyslexia and spoken language difficulties, and how best to characterise the two types of difficulty. While a full discussion of this is beyond the scope of this paper (for further detailed discussion, see Adlof & Hogan, 2018; Bishop & Snowling; 2004; Catts et al., 2005; Nash, Hulme, Gooch, & Snowling, 2013; Ramus, Marshall, Rosen, & van der Lely, 2013), it is important to touch on some of this literature where it relates to reading comprehension outcomes in children with dyslexia.

Some studies following at-risk children have now traced the path from pre-school language to school-aged reading comprehension. Broadly, these findings sit comfortably with the Simple View. Hulme, Nash, Gooch, Lervåg and Snowling (2015) analysed data from the Wellcome Reading and Language project. This longitudinal study recruited pre-school children at high risk for poor reading (they had a diagnosis of developmental language disorder, or were at family risk for dyslexia) and followed them through the primary school years. Hulme et al. (2015) found that language skills (linguistic comprehension) at 3.5 years made a direct contribution to reading comprehension at 8.5 years, and an indirect contribution via their effect on decoding at 5.5 years, which also influenced reading comprehension at 8.5 years. Similar findings were reported by Van Settern et al. (2018) who found that vocabulary in Grade 3 explained a substantial amount of variance in Grade 6 in the Dutch Dyslexia Program, a longitudinal study following Dutch children at family risk for dyslexia. Snowling, Hayiou-Thomas, Nash & Hulme (in preparation). categorised children from the Wellcome project into four groups, based on their decoding and oral language profile at 8 years: pure dyslexia (quadrant A), pure developmental language disorder (DLD; quadrant D), co-morbid dyslexia +DLD (quadrant C) or unimpaired (quadrant B). As predicted by the Simple View, all three impaired groups showed poor reading comprehension at 8 years. Interestingly, when re-assessed 12 months later, the pure dyslexia group had improved in reading comprehension, relative to both the DLD and the combined group, although they were still impaired relative to their typically-developing peers. Finally, the combined group showed the most severe deficits in reading comprehension at both time points, reflecting underlying weaknesses in both decoding and oral language.

Drawing across these at-risk studies, there is clear evidence in line with Gough and Tunmer's view that "there is a common denominator in every case of dyslexia, a deficit which could stand well as the proximal cause of the disorder. This is an inability to decode" (1986, p. 8). This exerts a direct influence on reading comprehension. Whether there are additional negative influences on reading comprehension from linguistic comprehension depends on the status of a child's oral language. Rather striking is the proportion of children with dyslexia who have language weaknesses, placing them into quadrant C rather than the traditional home of dyslexia, quadrant A. For example, of the 50 poor decoders identified by Snowling, Nash, Gooch, Hayiou-Thomas, and Hulme (2019) at 8 years, only 21 had "pure" dyslexia; the other 29 also showed significant levels of language impairment. One might argue that this high figure reflects the nature of the at-risk sample. However, it chimes with other work showing that approximately 50% of children with a diagnosis of dyslexia have language weaknesses measured concurrently in a sample not recruited for family risk (e.g., McArthur et al., 2000). It seems that when researchers measure oral language in children identified on the basis of a diagnosis of dyslexia, it is not at all unusual to find high levels of poor oral language (see also Adlof & Hogan, 2018).

Given the lack of research investigating reading comprehension in children with poor decoding, especially from studies that have not recruited on the basis of family risk, I took the opportunity to look into one of my own longitudinal datasets charting reading development from pre-school through the school years. The primary aim of the original project was to identify poor comprehenders and chart their reading and language development (Nation, Cocksey, Taylor, & Bishop, 2010; see Part III). However, this rich dataset also provided an opportunity to explore patterns of reading comprehension in children identified on the basis of poor decoding.

The learning to read longitudinal dataset

This study recruited a large and unselected sample of children on school entry shortly before their 5th birthday, and followed their reading and language development through the primary school years. Seventeen primary schools serving a socially mixed range of neighbourhoods in Oxfordshire took part in the study. All children beginning these schools at the start of the study were invited to participate. Informed consent from parents was received for 242 children (141 girls and 108 boys). The children were first assessed within 3 months of starting school, corresponding to a mean age of approximately 4 years and 10 months.

Our primary focus here is with data from two time points: when the children first entered school (Reception class, M age = 4.83 years, SD = 0.34, N = 242) and three years later (Year 2 in school, M age = 7.23 years, SD = 0.35; N = 202). To compare profiles across language and literacy tests that had been standardised on different populations, raw scores on these tests were converted to z-scores, using the mean and standard deviation of the entire sample assessed at each time point; for ease of reference, z-scores were transformed to standard scores (M = 100, SD = 15).

Reading skills at 7 years across the entire sample

At this time point, the children completed both the word (*Word Reading Efficiency*) and nonword (*Phonemic Decoding*) component of the *Test for Word Reading Efficiency* (TOWRE; Torgesen, Wagner, & Rashotte, 1999). This requires children to read aloud as many words (or nonwords) as possible in 45 s and the number read correctly is converted to a measure of word (or nonword) reading fluency. The *Neale Analysis of Reading Ability-II* (NARA-II; Neale, 1997) provided an assessment of text reading. In this test, children read aloud short passages of text (reading accuracy) and are then asked questions to assess literal and inferential understanding (reading comprehension). Finally, the *British Ability Scales Word Reading* subtest (Elliot, Smith, & McCullouch, 1996) provided an assessment of word reading. This is an untimed test in which children are presented with single words and asked to read each aloud. As is clear from the data summarised in Table 1, the correlation between performance across the different measures of reading was high.

Levels of reading comprehension in poor decoders at 7 years

Next we turn to those children who were poor at decoding. As discussed earlier, decoding is defined and measured in different ways in different studies. Here, children were identified on the basis of poor performance (standard score below 83) on the TOWRE, averaging across the two subtests. Thirty-four children were identified; from now on, I refer to these children as having a reading disorder (RD). Their performance across all reading assessments is detailed in Table 2. While there is some variation, it is notable that performance is low across the board, including in reading comprehension. It is also important to note that only 22 of the 34 RD children were able to complete the *Neale Analysis*: the other 12 struggled with reading individual words to the extent that testing was abandoned. This means that the text accuracy and comprehension scores reported in Table 2 underestimate the difficulties experienced by the RD children; nevertheless, reading comprehension was very poor with every child scoring below population average.

Oral language skills in children with RD at 7 years

Table 3 summarises the performance of the 34 children on five different measures of oral language. Expressive vocabulary was measured using the vocabulary subtest from the *Wechsler Abbreviated Intelligence Scales* (WASI, Wechsler, 1999). Children were asked to provide definitions for words supplied by the experimenter. Sentence comprehension was measured using the Comprehension subtest from the *Wechsler Intelligence Scale for Children* (WISC, Wechsler, 2003), a test which requires children to answer orally-presented socially-relevant comprehension questions. Two subtests from the *Clinical*

Table 1. Correlation between different reading measures at 7 years across entire sample, $N = 202$.

	Word Fluency	Nonword Fluency	Word Reading	Text Accuracy	Text Comprehension
Word Fluency[a]	-				
Nonword Fluency[b]	.87	-			
Word Reading[c]	.95	.89	-		
Text Accuracy[d]	.88	.88	.93	-	
Text Comp[d]	.79	.80	.83	.87	-

All correlations are statistically significant, $p < .01$.
[a]TOWRE Sight Word Efficiency;
[b]TOWRE Phonemic Decoding;
[c]BAS word reading;
[d]Neale Analysis of Reading Ability.

Table 2. Performance of RD children on reading assessments at 7 years (standard scores derived from the entire sample, $N = 202$).

	Word Fluency*[a]	Nonword Fluency*[b]	Word Reading[c]	Text Accuracy[d]	Text Comprehension[d]
N	34	34	34	22	22
M	75.99	82.54	77.99	78.80	79.95
SD	5.12	3.69	3.44	2.40	2.45
Minimum	67.58	79.15	70.88	74.79	74.13
Maximum	86.60	92.25	84.11	85.53	82.82

*indicates assessment used to select poor readers;
[a]TOWRE Sight Word Efficiency;
[b]TOWRE Phonemic Decoding;
[c]BAS word reading;
[d]Neale Analysis of Reading Ability.

Evaluation of Language Fundamentals (CELF-3[UK]; Semel, Wiig, & Secord, 2000) provided an estimate of expressive and receptive language skills. *Recalling Sentences* requires children to repeat sentences of increasing length and grammatical complexity; *Sentence Structure* assesses acquisition of structural rules at the sentence level by asking children to select a picture that matches the target sentence. Finally, in the Bus Story (Renfrew, 1991) children listen to a narrative describing events in a picture book. They then re-tell the story and their responses are analysed. Scores here reflect the information content of their re-tells.

Averaging across the five tests produced a mean standard score of 88, right at the end bottom end of normal range. However, this average hides a substantial amount of variability. For each test, performance varied from extremely poor to good.

Comparison of "pure" RD and RD with poor language at 7 years

It is clear that some children with RD at 7 years of age also perform poorly on tasks tapping oral language: in Simple View terms, they have poor linguistic comprehension alongside poor decoding. To investigate further, I used Bishop et al.'s (2009) methodology to classify a child as language impaired if they obtained at least two standard scores more than 1.33SD below the population mean on the five oral language measures described above. Of the 34 children with RD, 13 also met this criterion for language impairment. The results of this classification exercise are summarised in upper part of Table 4. For children with reading disorder only, scores were at the population average. As to be expected, those classified as language impaired obtained scores well below the normal range.

Despite large differences in oral language characterising the two subgroups, they showed an identical pattern of reading achievement across the all the reading tests, including reading comprehension (see Figure 3).

Table 4 also shows the performance of the two subgroups on three assessments of phonological ability, namely two assessments of nonword repetition (the *Children's Nonword Repetition Test*, Gathercole et al., 1996 and from the *Comprehensive Test of Phonological Processing* [CTOPP]; Wagner, Torgesen, & Rashotte, 1999) and one measure of phoneme deletion (also from the CTOPP). Both groups performed below average on these tests, and there was no difference in profile or severity across the two groups.

Table 3. Performance of RD children on measures of oral language at 7 years (standard scores derived from the entire sample, $N = 202$).

	Expressive Vocabulary[a]	Recalling Sentences[b]	Sentence Structure[b]	Narrative Content[c]	Sentence Comprehension[d]
N	34	34	34	31	34
M	88.34	88.23	83.13	93.31	87.95
SD	13.53	12.40	16.16	16.57	14.75
Minimum	68.02	68.47	41.95	54.14	60.38
Maximum	120.13	128.04	116.8	126.25	113.64

[a]WASI Vocabulary;
[b]CELF;
[c]Bus Story;
[d]WISC Comprehension.

Table 4. Comparison of RD children with and without language impairment at 7 years.

	RD (*N* = 21)		RD+LI (*N* = 13)	
	M	*SD*	*M*	*SD*
Language classification tests				
Expressive Vocabulary	95.04	11.22	77.52	9.40
Recalling Sentences	92.06	12.78	82.05	9.16
Sentence Structure	90.74	10.85	70.83	16.02
Narrative Content*	100.81	11.58	81.43	16.68
Sentence Comprehension	95.21	11.75	76.22	11.28
Phonological Skills				
Phoneme Deletion	86.29	8.99	82.44	9.85
Nonword Rep: CTPP	87.69	15.39	82.05	11.86
Nonword Rep: CNRep	87.57	15.54	80.65	10.58

*N = 19 and 12.

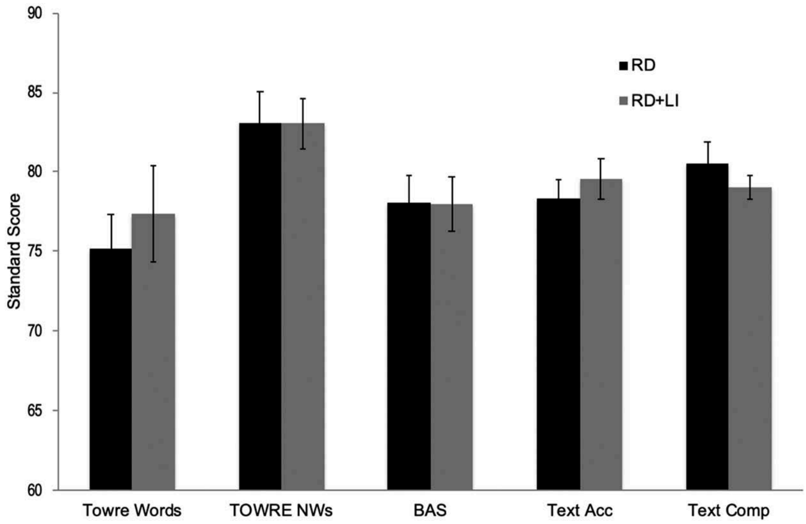

Figure 3. Mean (SD) standard scores on reading assessments at 7 years.

In summary, children selected as having RD at 7 years of age, defined in terms of poor performance on word and nonword reading fluency, also showed significant impairments in reading comprehension (and phonological skills). Over a third of the group could be classified as having a language impairment, placing them in quadrant C rather than quadrant A. Interestingly, having a concomitant language impairment was not associated with more severe reading comprehension difficulties. Despite relative strengths in oral language, reading comprehension was as poor in the RD-only group as the RD+LI group.

Having identified children with RD at 7 years and classified them on the basis of oral language at that time point, we now turn to look back at the data from the two subgroups at school entry. Of interest is the children's oral language at this time, before the onset of reading.

Looking backwards in time: oral language, phonological skills and emergent literacy at school entry

The 34 children identified as RD at 7 years were 4.88 years old (*SD* = 0.37) at the first assessment. Oral language was measured using three different tests. Expressive vocabulary was assessed using the vocabulary subtest from the *Wechsler Preschool and Primary Scale of Intelligence* (WPPSI, Wechsler, 2002). Initial items require children to name pictures but most items involve the child providing definitions for words supplied by the assessor. Children also completed the *Test for Reception of Grammar-2* (TROG-2, Bishop, 2003). This measures children's comprehension of sentences, with grammatical complexity increasing over the test. Sentence comprehension was assessed using the comprehension subtest from the WISC, as administered at 7 years. Performance is plotted in Figure 4 for the 34 children identified as RD at 7 years, separated by language status at 7 years.

Consistent with their later classification, children in the RD+LI group showed substantially lower levels of oral language at school entry than children in the RD group. As the children were pre-readers, these language weaknesses cannot be attributed to lack of language learning via reading. It is notable that the RD-only children obtained mean language scores of 95, 93 and 93 for vocabulary, receptive grammar and sentence comprehension respectively. While there was variation within the group, this generally places the children within normal range, in contrast to those in the RD+LI group (recall that standard scores were calculated from the entire sample of children who were assessed at this time point, *N* = 242). Overall, these findings point to stability in language skills, with profiles at school entry mirroring those seen three years later.

Five tests provided an assessment of the children's phonological skills at school entry. Phonological awareness was measured using two subtests from the CTOPP (Wagner et al., 1999): *Phoneme Elision*, in which children delete an initial or final phoneme from orally

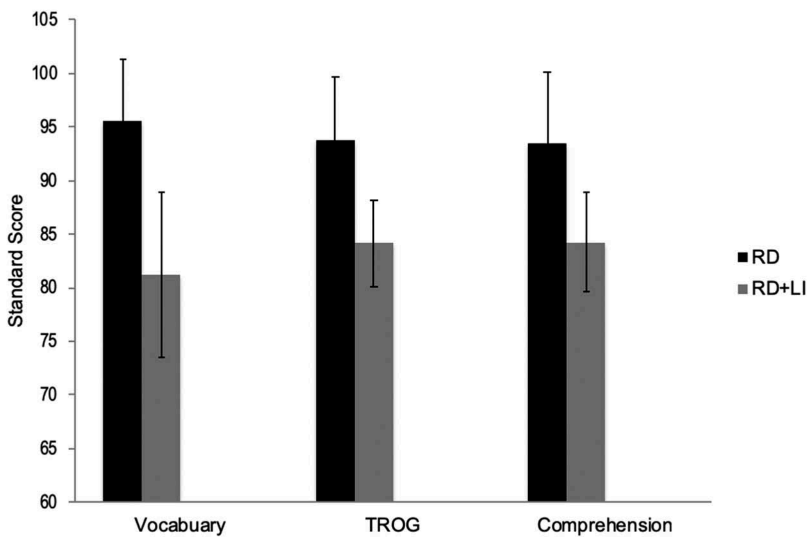

Figure 4. Mean (SD) standard scores on oral language measures at 5 years, as a function of reading and language status at 7 years.

presented words, and *Sound Matching*, where children hear three words and are asked to select which one starts (or ends) with the same sound as a target item. We also administered *Rime Judgement*, a task developed by Bird, Bishop, and Freeman (1995) to measure phonological awareness in young children. Children selected from an array of four pictures the one that rhymed with a target item. Nonword repetition was assessed using the *Children's Test of Nonword Repetition* (Gathercole & Baddeley, 1996) and the Nonword Repetition subtest from the CTOPP.

As shown in Figure 5, the two subgroups did not differ in terms of phonological awareness. It is important to note that performance across the entire sample was quite low in terms of phoneme deletion and sound-matching, as to be expected given the age of the children at this time point. As a consequence, the data must be interpreted cautiously. On the rime task (where performance was stronger across the entire cohort), the RD-only children scored within normal range, and performed better than the children in the RD+LI group. This pattern was also evident across both measures of nonword repetition. It is interesting to note that the RD-only children performed quite well across all measures of phonological processing at school entry, yet by 7 years of age, they were below normal range, and performed as poorly as the RD+LI children. This might reflect a pattern of phonological skills becoming more impaired over time, as children with RD benefit less from reciprocal links with reading and alphabetic knowledge (see Nation and Hulme (2011) for a detailed investigation of this within the same dataset).

Turning to reading, most of the children in the entire sample were unable to read at the start of the study. There was however a good amount of variation in letter knowledge. Tellingly, given their future difficulties with word reading, letter knowledge was low for the children who were later classified as RD-only and RD+LI (standard scores of 84 and 83 respectively).

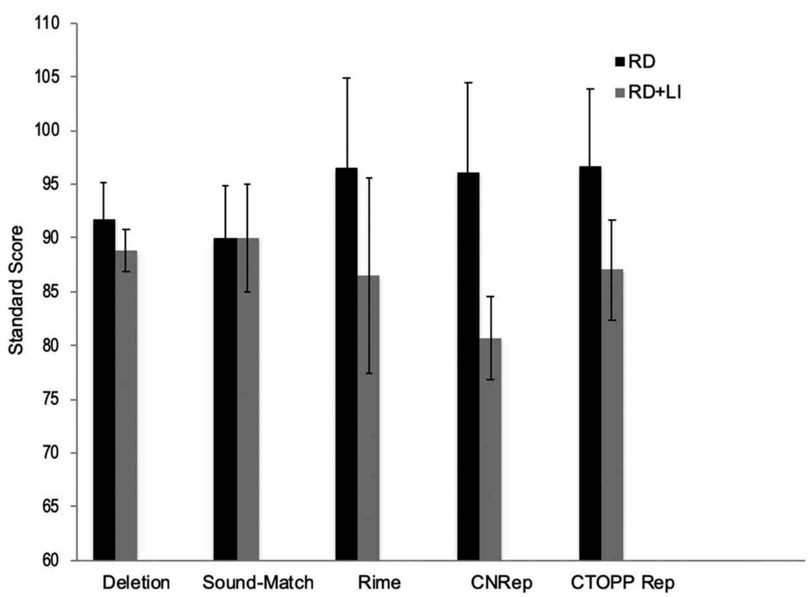

Figure 5. Mean (SD) standard scores on phonological measures at 5 years, as a function of reading and language status at 7 years.

Looking forward in time: reading accuracy and reading comprehension at 8 and 10 years

While it is possible to classify children as RD and RD+LI at 7 years, this is a young age to be measuring reading comprehension, especially in children with manifestly poor reading at the word level. We had the opportunity to assess reading skills later in time, when the children were 8 years of age (*N* = 20 RD and 11 RD+LI) and once again at 10 years of age (*N* = 12 RD and 7 RD+LI). Performance on both the reading accuracy and reading comprehension components of the *Neale Analysis of Reading Ability* from these two timepoints are plotted in Figure 6, along with data from 7 years. At no time point is there any difference in reading skills between the RD-only and RD+LI subgroups; at 10 years of age, it is clear that the RD-only children are still poor at reading comprehension, despite their strengths in oral language. Figure 6 indicates some improvements over time in both groups, but note that this upward trajectory reflects only small differences in terms of standard score.

Summary and discussion

This exploration of the Learning to Read dataset shows that 7-year-olds with poor decoding also show impairments in reading comprehension, in line with the principles of the Simple View. It would be a mistake, however, to infer that reading comprehension is compromised by poor decoding alone. Approximately one third of the sample showed poor oral language at 7 years, and these difficulties were evident earlier in time, at school entry. These findings align with data from family risk studies (Snowling & Melby-Lervåg , 2016) and reinforce the need to consider children's language skills as well as their decoding ability.

A number of implications follow for both research and educational practice. For research, there is a pressing need to look beyond standardised scores on an off-the-shelf test of reading comprehension to consider the nature of reading comprehension in children with poor decoding. It is surprising that few studies have looked at reading

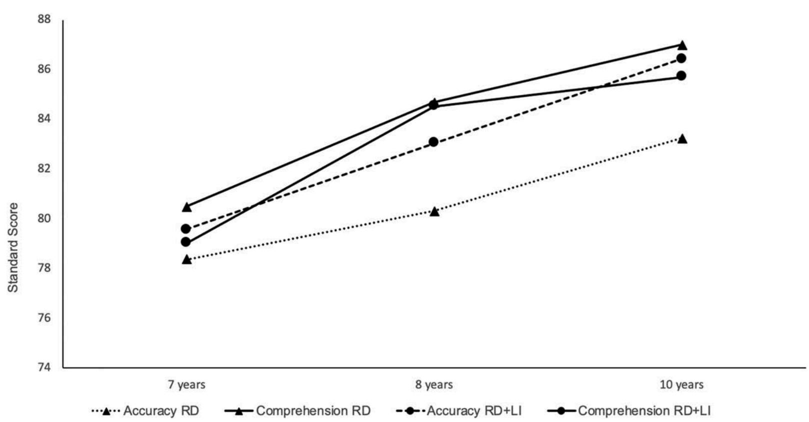

Figure 6. Mean standard scores of Neale Analysis (accuracy and comprehension) scores over time, as a function of reading and language status at 7 years.

comprehension itself in dyslexia. It would be interesting to vary question type, or use methods such as eye tracking to investigate factors such as inference-making while reading. Such experiments could address whether there are systematic differences in RD children with and without concomitant oral language weaknesses. Longitudinal data are also needed to help us to understand which children make progress in reading comprehension, and how.

The consistent finding that a substantial proportion of children identified on the basis of poor decoding have co-occurring language problems highlights the need to assess broader language skills in poor readers, and for intervention approaches to target language as well as decoding. Duff, Fieldsend, Bowyer-Crane, Hulme, Smith, Gibbs and Snowling (2008) identified a subgroup of poor readers who had not responded to an intensive intervention programme targeting reading and phonology. As a group, these children showed low language. Their expressive vocabulary was at the 5th centile, and their performance on tests of grammatical skill corresponded to the 5.5 year old level—yet they were nearly 8 years old. In contrast, poor decoders who had responded well to the reading and phonology programme in previous studies achieved normal-for-age vocabulary scores. These observations suggest that co-occurring language difficulties place children at risk of being "treatment resistors", meaning more intensive and specialist provision is required, extending to rich oral language intervention as well as instruction in decoding (see Duff et al., 2014; Fricke, Bowyer-Crane, Haley, Hulme, & Snowling, 2013). Extending these research findings to educational practice can be facilitated by collaborations between teachers and speech and language pathologists (Adlof & Hogan, 2018; Snow, 2019).

Part III: poor comprehenders

Having reviewed poor decoding as a source of reading comprehension difficulty, we now turn our attention to quadrant D. Poor comprehenders were first described in the scientific literature by Oakhill (1982; 1983; 1984) who used the *Neale Analysis of Reading Ability* to identify children who appear to have circumscribed difficulties with reading comprehension. In this test, children read aloud short passages of text (generating a score for reading accuracy) and then answer questions to assess their literal and inferential understanding of the text, generating a score for reading comprehension. Oakhill (1982) identified 7–8 year olds who were disproportionality poor at reading comprehension, despite age-appropriate reading accuracy. Looking across the experimental literature since Oakhill's original work, studies have used different selection criteria. This makes precise prevalence hard to estimate. Perhaps the most reliable estimates come from nationally representative and large samples in the UK, extracted from the data used in the standardisation of the *York Assessment of Reading for Comprehension* (Snowling et al., 2009; Stothard, Hulme, Clarke, Barmby, & Snowling, 2010). In the primary school sample, 5.3% of children with age-appropriate levels of word reading ability obtained reading comprehension standard scores below 77.5 (equating to more than 1.5 *SD*s below average for their age); in the secondary school sample, the figure was 5%. Thus, poor comprehenders of this severity exist and this profile of reading difficulty is not rare.

As reviewed earlier, according to the Simple View, reading comprehension is the product of decoding and linguistic comprehension. It follows from this that children identified as poor comprehenders must have deficits either in decoding, linguistic comprehension, or both. This logic forces the conclusion that reading comprehension deficits cannot be specific, but instead must be related to weaknesses in one or both of its component parts. For the children described above as having "specific" reading comprehension impairments, which component is at fault?

As is to be anticipated given the selection methods used to identify poor comprehenders, weak decoding is an unlikely explanation for the patterns of poor reading comprehension identified by Oakhill in her early studies. Subsequent research has bolstered this conclusion. It is not the case that poor comprehenders have accurate-but-slow reading, indicative of subtle decoding problems that cause a bottleneck and disrupt reading comprehension: it is perfectly possible to identify poor comprehenders who have good reading fluency alongside good reading accuracy. For example, Ricketts, Bishop and Nation (2007) used assessments of word and nonword reading fluency (provided by the *TOWRE*, Wagner et al., 1999) to identify and match poor comprehenders with control children. These children were 8–10 years old. This leaves open the possibility that they might have had poor decoding earlier in development and this has somehow left a lasting legacy of less than optimal decoding, which in turn hampers reading comprehension. But this does not seem to be the case. Reporting on data from the Learning to Read project introduced in Part II, Nation et al. (2010) identified poor comprehenders in mid-childhood. They then looked back in the dataset to chart reading development from its initial stages onwards. Those children who went on to show a poor comprehender profile at 8 years showed all the hallmarks of good decoding from the outset. They started school with normal levels of letter knowledge, and throughout development they showed age-appropriate reading fluency for words and nonwords, and text reading too. For children identified as poor comprehenders then, weaknesses in decoding cannot explain why reading comprehension is compromised.

Turning to the other component of the Simple View, there is plenty of evidence demonstrating that poor comprehenders show impairments on tasks that tap linguistic comprehension. Using a version of the *Neale Analysis of Reading Ability* where the children listened to the stories rather than read them, Nation and Snowling (1997) found that poor comprehenders performed less well than control children. As discussed earlier, listening comprehension is a broad construct: like reading comprehension itself, there are many reasons why a child might find it difficult. Nation et al. (2004) made a thorough investigation of 8–9 year-old poor comprehenders' oral language skills using a range of standardised assessments that tapped phonological skills as well as vocabulary, morphosyntax and the understanding of non-literal language. Consistent with evidence from earlier experiments (Cain, Oakhill, & Bryant, 2000; Nation & Snowling, 1998; Stothard & Hulme, 1995), the poor comprehenders performed as well as their peers on the phonological tasks. However, on all other tests they performed less well than the control children as a group, leading Nation et al. to conclude that low language characterises many (but not all) poor comprehenders. Furthermore, a substantial minority of the sample showed significant language difficulties and met criteria for specific language impairment (now known as developmental language disorder: Bishop, Snowling, Thompson, Greenhalgh, 2016).

An important question is whether these mild-to-moderate oral language weaknesses might be a consequence of reading comprehension failure, rather than a precursor. This is a plausible suggestion. Written language provides many opportunities to support language development. Once children can read, they have the opportunity to learn new words via reading (Nagy, Anderson, & Herman, 1987) and to absorb the rich morphological cues to meaning that are evident in spelling patterns (Rastle, 2018, Rastle, 2019). Reading also provides experience with syntactic structures that are quite rare in conversation (Montag & McDonald, 2013). If poor comprehenders read less, this could contribute to oral language deficits emerging over time as a consequence of this lack of input from reading experience.

The Learning to Read Project provided an opportunity to test this hypothesis directly. Nation et al. (2010) selected poor comprehenders on the basis of their reading profile at 8 years. Tracing back in the dataset to when the children started school, the children who went on to be identified as poor comprehenders at 8 years on the basis of their reading profile showed low oral language at 4.5 years and throughout the primary school years. Despite these language weaknesses, the poor comprehenders showed age-appropriate phonological skills, consistent with the view that relative strengths in phonological ability supported the development of word reading, but relative weaknesses in other aspects of language contributed to the children's difficulties with reading comprehension. Similar findings have been reported in other retrospective longitudinal studies (Catts, Adlof, & Weismer, 2006; Elwér, Keenan, Olson, Byrne & Samuelsson, 2013; Petscher, Justice, & Hogan, in press). Together, these findings show that oral language weaknesses precede reading development in poor comprehenders, meaning that difficulties observed later in development are not a straightforward consequence of lack of reading—although of course, reciprocal influences are to be expected.

In summary, the profile of strengths in decoding but relative weaknesses in aspects of oral language indicates that many poor comprehenders fit within quadrant D of the Simple View. More generally, the oral language profile that characterises poor comprehenders fits with what we have learned from typical development—that oral language skills are highly associated with listening comprehension (Lervåg et al., 2018; LARRC, 2017), and that variation in oral language and listening comprehension is associated with later reading comprehension (e.g., Hulme et al., 2015).

I have focused here on poor comprehenders—children identified on the basis of their reading profile. The literature on children with DLD (identified on the basis of primary impairments in oral language) also describes some children whose reading profile fits within quadrant D. Many DLD children struggle with both decoding and linguistic comprehension, consistent with a quadrant C reading profile. Some, however, can decode quite well, but as to be expected given deficits in oral language, reading comprehension tends to be impaired (Catts et al., 2002; Nation & Norbury, 2005; Snowling et al., 2019). These children are probably overlapping with those identified as poor comprehenders—that is, when oral language is measured, some (but not all) poor comprehenders meet criteria for DLD, and when reading is measured, some (but not all) children with DLD show the same reading profile as poor comprehenders.

Why does reading comprehension go wrong for poor comprehenders?

The Simple View is helpful in reminding us that reading comprehension has its bases in language comprehension. Once children can read words adequately, variation in reading comprehension is strongly associated with variation in language comprehension more generally. Beyond this truism, however, the Simple View does not provide further specification as to why comprehension might fail. Reading comprehension is not "one thing"; like language comprehension more generally, it is a complex construct, drawing on a range of cognitive and linguistic capacities (for review, see Castles et al., 2018; Perfetti & Stafura, 2014). Is it possible to further specify where in this complex set of processes comprehension breaks down for poor comprehenders?

To address this question, experiments have compared poor comprehenders and a control group on tasks hypothesised to be relevant to reading comprehension. These experiments have found that poor comprehenders are less able to make inferences (Cain & Oakhill, 1999), understand words or activate their meanings in context (Nation & Snowling, 1998, 1999), connect ideas in text (Ehrlich & Remond, 1997), remember verbal information (Hua & Keenan, 2014) and monitor their comprehension (Oakhill, Hartt, & Samols, 2005). They are also less skilled at learning and remembering new words and adding to their knowledge (Cain, Oakhill & Elbro, 2003; Ricketts, Bishop, & Nation, 2008). It is hard to derive conclusions across different experiments, not least because of methodological limitations such as sample size, and variations in age and the methods used to define samples. Nevertheless, two observations are noteworthy. First, there is no "magic profile" that captures all children and totally "explains" their poor comprehension. This reflects both the complexity of comprehension and the difficulty of separating one component of comprehension cleanly. As Castles et al. (2018) discuss in detail, comprehension is not only multifaceted with factors interacting in multiple ways during the process of reading, it is also complex developmentally, as factors interact and change over time. Second, common to most of the experiments that find a poor comprehender difference is that the task is within the verbal domain. For example, Pimperton and Nation (2010) found that poor comprehenders showed more interference in working memory, but only for verbal materials; when the task switched to the visuo-spatial domain, the poor comprehenders were indistinguishable from their peers. This is consistent with underlying language weaknesses influencing performance on any task that places demands on those linguistic resources—including, of course, reading comprehension. Further research is needed to unpack global constructs such as "reading comprehension" and "linguistic comprehension", not least in order to guide effective teaching and intervention in the classroom.

Assessment and intervention for poor comprehenders

The Simple View has been influential in highlighting the existence of the poor comprehender profile, and the need to identify appropriate approaches to assessment and intervention. It is clear that the ability to read words accurately and fluently—while critical for adequate comprehension—is no guarantee that adequate reading comprehension will follow. In turn, this means that a thorough assessment of reading should also include a measure of text comprehension. This is not, however, a straightforward matter. Reading comprehension tests vary. Some are heavily dependent on a child's word reading; others are so dependent on background knowledge that the questions can be answered quite well without actually reading the passage (Keenan & Meenan, 2014). The same test can also tap different component skills, depending on the performance level achieved by a child (Hua & Keenan, 2017). Knowledge effects are impossible to avoid—comprehension is a reflection of our knowledge and for all of us, reading comprehension is more difficult when topic knowledge is low. The message here is that we need to be mindful of the nature of the test being used, and appreciate that test performance depends not only on the child's knowledge and abilities, but also the features of the text (a point that holds for all children, not just poor comprehenders). The poor comprehender literature also has implications for the need to assess children's oral language (beyond phonological skills) as part of any thorough assessment of reading.

One approach to intervention is to address a particular component of reading comprehension, for example, vocabulary, inference making, or comprehension monitoring. Such intervention studies have generally been with poor decoders, or children who find both word reading and comprehension difficult, rather than with poor comprehenders specifically. While gains are made on what has been taught, transfer effects to non-trained components or on standardised measures of reading comprehension are small (Elleman, 2017; Elleman, Lindo, Morphy, & Compton, 2009). This is perhaps not surprising, given the complex nature of reading comprehension, and its dependence on strong content knowledge. That said, there are excellent examples of promising approaches to teaching reading comprehension (for review, see Oakhill, Cain, & Elbro, 2014) that could be developed and trialled for children identified as poor comprehenders.

A different approach is to consider the fundamental role of oral language (or linguistic comprehension, in terms of the Simple View) in reading comprehension and aim intensive intervention there. Working from the finding that poor comprehenders have impairments in linguistic comprehension, Clarke, Snowling, Truelove, and Hulme (2010) developed a language intervention that directly and explicitly worked on 8–9 year-olds' oral language with direct instruction tapping vocabulary, grammar and narrative. Using a randomised controlled design, they compared this 20-week intervention with one focussing on text comprehension itself, and a combined approach targeting both oral language and text comprehension. Intervention was delivered in small groups by trained teaching assistants, with three 30-minute sessions per week. Pleasingly, all three groups improved in reading comprehension relative to a waiting list control group. Those receiving oral language training showed most improvement in reading comprehension 11 months later, and improvements in reading comprehension were predicted by improvements in vocabulary. Fricke et al. (2013) used a similar approach but with materials designed for much younger children. They identified children with low language at around the time of school entry. Those who received an intensive language intervention showed improvements in oral language, and got off to a better start with reading comprehension than children in the control group. These findings are encouraging, and support the rationale for improving children's oral language as the basis for bringing about improvements in reading comprehension. Note however these interventions are intensive, and are designed to be delivered by teaching assistants who have been specifically trained—quick fixes are not to be expected.

Part IV: reflections on the Simple View

In the 30-plus years since the Simple View was first articulated by Gough and Tunmer (1986), its elegance and force in describing the essence of reading comprehension has become clear. By setting out decoding and linguistic comprehension as separate but interacting components, it reminds us that reading comprehension requires *both* the ability to identify individual words, and the ability to construct meaning from text. When assessed reliably using comprehensive measures, how good children are at decoding and linguistic comprehension predicts how good they are at reading comprehension extraordinarily well. The Simple View provides a framework for classifying reading difficulties, and it has done much to promote our understanding of the relationship between spoken language and reading development. It is not just children with "classic dyslexia" who need extra support in the classroom: research conducted within the Simple View framework has shown that a large proportion of children with low word reading also show poor oral language, as do children with reading comprehension impairments. These research findings have important implications for assessment and intervention and it is a positive development to see materials written for practitioners framed within the Simple View (e.g. Stuart & Stainthorp, 2015).

Despite these strengths, the Simple View has led to some false impressions. As noted earlier, the Simple View "does not deny the complexity of reading, but asserts that such complexities are restricted to either of the two components", linguistic comprehension and decoding (Hoover & Gough, 1990, p. 150). Nevertheless, Catts (2018) discusses how visualisations of the Simple View—diagrams like Figure 1, with the two components appearing to be the same size—have inadvertently camouflaged the complexity of reading comprehension and in doing, created false impressions about its malleability, and the extent to which it can be captured by a score on an omnibus test. These concerns intersect with some of our earlier discussion—that the Simple View is not a model of what needs to develop to bring about change in either of the two components. In terms of partitioning and explaining variance, it is clear that the relative weighting of the two constructs changes over time, with linguistic comprehension becoming more closely associated with reading comprehension as decoding skills strengthen (e.g., Language and Reading Research Consortium, 2015). Early on, the decoding component predominates, but beyond the early stages of learning to read, the linguistic comprehension oval in diagrams like Figure 1 needs to be much bigger, and have more indicators feeding into it, reflecting its multifaceted nature.

Another false impression is that the two components are entirely separable. A good deal of variation in reading comprehension is shared between the two components. Lonigan et al. (2018) suggested that this common variance might be related to some underlying general cognitive linguistic ability, and in their analyses, shared variance predicted differences in reading comprehension beyond the unique variance associated with each component. Consistent with this, longitudinal data have shown that some factors predict multiple components of reading. As noted earlier for example, Hulme et al. (2015) found that language skills at 3.5 years contributed to decoding at 5.5 years as well as reading comprehension at 8.5 years. Similarly, there is no doubt that oral vocabulary is a vital component of linguistic comprehension, nor that it is closely associated with reading comprehension. This does not mean it is irrelevant for word reading. On the contrary, vocabulary is also associated with word reading, both in typical development and atypical development (e.g., Nation & Snowling, 1998; Taylor, Duff, Woollams, Monaghan, & Ricketts, 2015). Consider too the importance of morphology. Numerous studies have found associations between children's reading comprehension and their knowledge and appreciation of morphology (e.g., Levesque, Kieffer, & Deacon, 2019; Tong, Deacon, Kirby, Cain, & Parrila, 2011), consistent with morphology being a critical component of linguistic comprehension. At the same time, however, skilled word recognition is highly sensitive to morphological regularities that are marked in the orthography, reminding us that English is a morphophonemic in nature (Rastle, 2019; Venezky, 1999). As reading develops, the word recognition system comes to embody this structure and this is reflected in how single words are read and processed (e.g., Dawson, Rastle, & Ricketts, 2018; Kearns & Al Ghanem, in press). Thus, morphological knowledge is not only part of linguistic comprehension. It is also core to word recognition and its development—that is, what is captured within the Simple View as "decoding".

What are the implications of these findings for the Simple View? To take development on board, it might be that our visual representation needs to be more complex, with some underlying language factor feeding into both components, and/or bi-directional connections between decoding and linguistic comprehension, as shown in Figure 7.

This figure also shows feedback arrows from reading comprehension into language. This is to remind us of the importance of reading experience. It is the substrate from which basic decoding skills develop and automatise (see Castles et al., 2018). It also provides rich and varied opportunities for language learning, as children encounter new vocabulary and new syntactic structures via reading (Montag & MacDonald, 2015; Montag, Jones, & Smith, 2015). The implication of this for children with reading difficulties is neatly captured by Stanovich's (1986) description of the Matthew effect—the richer get richer and the poor get poorer. Low levels of spoken language set the scene for reading difficulties, which in turn lead to greater differences in spoken language, relative to peers who read well. Or, in the words of Snow (2016), "language is literacy is language".

The Simple View provides a useful framework for thinking about reading comprehension and its development. It positions decoding as central to learning to read and reminds us that no amount of oral language prowess can bring about successful

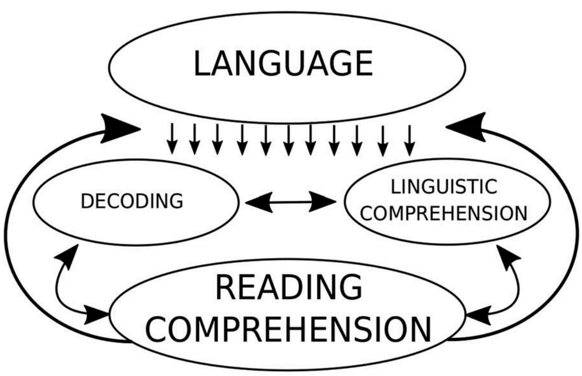

Figure 7. An expanded view of the Simple View of reading.

reading, if a child has not learned the principles of how their writing system works. This is what learning to read is about, and what needs to be taught at the outset. Getting better at reading words, and developing all that is needed to serve reading comprehension in all its infinite varieties, obviously demands more than decent decoding: the knowledge and processing skills nested within linguistic comprehension are fundamental. There is no doubt that the Simple View explains variance in reading comprehension. But we also need to look beyond the Simple View, if we are to understand more about how subcomponent processes work and develop, and how they can be optimised in the classroom and the clinic by well-designed reading and language instruction.

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