

Appendix SA: List of linguistic materials in the pragmatics test

1. List of linguistic materials in the picture-selection parts of the pragmatics test (translated in English from Dutch)

Item	Sequence	Sub-test/Linguistic stimuli	Version	Response Options/Pictures ¹	Condition	Practice
		Relevance implicatures				
1	1	Thomas, put the blindfold on, please. What kind of cloth do you want?	1, 2, 3	t-shirt , hat, shirt	n. a.	Yes
	2	I want a t-shirt				
2	1	Thomas, here are three pictures. How is the weather in the picture that you want?	1, 2, 3	sunny weather, snowy weather, stormy weather	n. a.	Yes
	2	It's stormy				
3	1	Thomas, here is a glass of orange juice	1, 2, 3	glass of orange juice , glass of cola, glass of milk	n. a.	Yes
	2	Here is a glass of cola				
	3	And here is a glass of milk.				
	4	Please, describe to me what you want				
	5	It's orange.				
4	1	Thomas, put the blindfold on, please. What kind of item do you want?	1	knitted hat, umbrella , pair of shorts	Implicature	No
	2	It's raining				
5	1	Thomas, put the blindfold on, please. What kind of item do you want?	1	coat, belt, hat	Implicature	No
	2	It's sunny				
6	1	Thomas, put the blindfold on, please. What kind of item do you	2	coat , belt, hat	Implicature	No

		want?				
	2	It's snowing				
7	1	Thomas, put the blindfold on, please. What kind of item do you want?	2	knitted hat, umbrella, pair of shorts	Implicature	No
	2	It's very hot				
8	1	Thomas, put the blindfold on, please. What kind of item do you want?	3	knitted hat , umbrella, pair of shorts	Implicature	No
	2	It's very cold				
9	1	Thomas, put the blindfold on, please. What kind of item do you want?	3	belt, wind jacket , hat	Implicature	No
	2	It's windy				
10	1	Thomas, here is a cup of tea	1	cup of tea , ice cream, shining ring	Literal-2	No
	2	Here is an ice cream				
	3	And here is a ring				
	4	Please, describe to me what you want				
	5	It's very hot				
11	1	Thomas, here is some chocolate	1	brown chocolate , flying bird, white ball	Literal-2	No
	2	Here is a bird				
	3	And here is a ball				
	4	Please, describe to me what you want				
	5	It's brown.				
12	1	Thomas, here is a cup of tea	2	cup of tea, ice cream , shining ring	Literal-2	No
	2	Here is an ice cream				
	3	And here is a ring				

	4	Please, describe to me what you want				
	5	It's very cold				
13	1	Thomas, here is some chocolate	2	brown chocolate, flying bird , white ball	Literal-2	No
	2	Here is a bird				
	3	And here is a ball				
	4	Please, describe to me what you want.				
	5	It's flying				
14	1	Thomas, here is a cup of tea	3	cup of tea, ice cream, shining ring	Literal-2	No
	2	Here is an ice cream				
	3	And here is a ring				
	4	Please, describe to me what you want.				
	5	It's shining				
15	1	Thomas, here is some chocolate	3	brown chocolate, flying bird, white ball	Literal-2	No
	2	Here is a bird				
	3	And here is a ball				
	4	Please, describe to me what you want.				
	5	It's white				
16	1	Thomas, here are three pictures. How is the weather in the picture that you want?	1	sunny weather, snowy weather , rainy weather	Literal-1	No
	2	It's snowing.				
17	1	Thomas, here are three pictures. How is the weather in the picture that you want?	1	windy weather, hot weather, cold weather	Literal-1	No
	2	It's very cold.				

18	1	Thomas, here are three pictures. How is the weather in the picture that you want?	2	sunny weather, snowy weather, rainy weather	Literal-1	No
	2	It's raining				
19	1	Thomas, here are three pictures. How is the weather in the picture that you want?	2	windy weather , hot weather, cold weather	Literal-1	No
	2	It's windy				
20	1	Thomas, here are three pictures. How is the weather in the picture that you want?	3	sunny weather , snowy weather, rainy weather	Literal-1	No
	2	It's sunny				
21	1	Thomas, here are three pictures. How is the weather in the picture that you want?	3	windy weather, hot weather , cold weather	Literal-1	No
	2	It's very hot				
Novel Metaphors						
22	1	A few days ago, Niels's father went to the cinema. He watched a very nice movie and he really enjoyed it. Niels, how was your father feeling when he returned home?	1, 2, 3	happy man , sad man, man watching TV (firing cannon shown on the TV)	n. a.	Yes
	2	He was a happy man.				
23	1	A few days ago, Niels's father went to the cinema. He watched a very nice movie and he really enjoyed it. Niels, how was your father feeling when he returned home?	1, 2, 3	happy man , sad man, man watching TV (firing cannon shown on the TV)	n. a.	Yes
	2	He was a happy man.				
24	1	A few days ago, Niels's father fell asleep while watching a war movie on TV. Suddenly, a very loud noise coming from the TV woke him up. Niels, what had	1, 2, 3	angry man, sad man, man watching TV (firing cannon	n. a.	Yes

		caused the loud noise on the TV?		shown on the TV)		
	2	It was a firing cannon.				
25	1	A few days ago, Niels's father went to the stadium to watch his favourite football team. His team did not play well and lost. Niels, how was your father feeling when he returned home?	1	angry man, sad man , man watching vase with a wilted flower on a desk	Implicature	No
	2	He was a wilted flower.				
26	1	Niels's father had bought an expensive car. A few days ago, however, Niels accidentally kicked the ball on the car and broke one of its windows. Niels, how was your father feeling when he found out?	1	sad man, thunder falling from a cloud and man standing in the rain, angry man	Implicature	No
	2	He was a thunderous storm cloud				
27	1	A few days ago, Niels's parents were invited to a very important dinner and Niels's father was going to wear his favourite suit. At some point, however, Niels accidentally spilt paint on the suit's jacket. Niels, how was your father feeling when he found out?	2	man watching sinking ship, sad man , angry man	Implicature	No
	2	He was a sinking ship				
28	1	A few days ago, Niels's father bought a ticket to watch his favourite singer's concert. At some point, however, Niels accidentally spilt water on the ticket and completely ruined it. Niels, how was your father feeling when he found out?	2	angry man , sad man, man watching TV (exploded bomb shown on the TV)	Implicature	No
	2	He was an exploded bomb				

29	1	Niels's father had a dog that he loved dearly. A few days ago, Niels accidentally left the fence door open and the dog escaped. Niels, how was your father feeling when he found out?	3	collapsing building, angry man, sad man	Implicature	No
	2	He was a collapsing tower				
30	1	A few days ago, Niels's father's best friend had brought him a very expensive vase as a gift. At some point, however, Niels accidentally broke the vase. Niels, how was your father feeling when he found out?	3	angry man , sad man, man watching TV (erupted volcano shown on the TV)	Implicature	No
	2	He was an erupted volcano				
31	1	A few days ago, Niels's parents were invited to a very important dinner and Niels's father was going to wear his favourite suit. At some point, however, Niels accidentally spilt paint on the suit's jacket. Niels, how was your father feeling when he found out?	1	man watching sinking ship, sad man , angry man	Literal-1	No
	2	He was a sad man.				
32	1	A few days ago, Niels's father bought a ticket to watch his favourite singer's concert. At some point, however, Niels accidentally spilt water on the ticket and completely ruined it. Niels, how was your father feeling when he found out?	1	angry man , sad man, man watching TV (erupted bomb shown on the TV)	Literal-1	No
	2	He was an angry man.				
33	1	A few days ago, Niels's father's best friend had brought him a very expensive vase as a gift. At some point, however, Niels	2	angry man , sad man, man watching TV (erupted volcano	Literal-1	No

		accidentally broke the vase. Niels, how was your father feeling when he found out?		shown on the TV)		
	2	He was an angry man.				
34	1	Niels's father had a dog that he loved dearly. A few days ago, Niels accidentally left the fence door open and the dog escaped. Niels, how was your father feeling when he found out?	2	man watching collapsing building, angry man, sad man	Literal-1	No
	2	He was a sad man				
35	1	A few days ago, Niels's father went to the stadium to watch his favourite football team. His team did not play well and lost. Niels, how was your father feeling when he returned home?	3	angry man, sad man , man watching a vase with wilted flower on desk	Literal-1	No
	2	He was a sad man				
36	1	Niels's father had bought an expensive car. A few days ago, however, Niels accidentally kicked the ball on the car and damaged one of its windows. Niels, how was your father feeling when he found out?	3	sad man, thunder falling from cloud and man standing in the rain, angry man	Literal-1	No
	2	He was an angry man				
37	1	A few days ago, Niels's father fell asleep while watching a documentary about volcanos on the TV. Suddenly, a very loud noise coming from the TV woke him up. Niels, what caused the loud noise on the TV?	1	angry man, sad man, man watching TV (erupted volcano shown on the TV)	Literal-2	No
	2	It was an erupted volcano				
38	1	A few days ago, Niels's father was watching TV when he suddenly heard a very loud noise.	1	man watching collapsing building , angry	Literal-2	No

		Niels's father went outside to see what had happened. Niels, what did your father see outside?		man, sad man		
	2	It was a collapsing tower				
39	1	A few days ago, it was raining heavily and Niels's father was walking back home with his umbrella. Suddenly, he heard a very loud noise. Niels, what caused the loud noise?	2	sad man, thunder falling from cloud and man standing in the rain , angry man	Literal-2	No
	2	It was a thunderous storm cloud.				
40	1	Before leaving for holidays Niels's father had put a flower in a vase in his office. A few days later, Niels's father went back to work. Niels, what did your father see in the vase when he went back to his office?	2	angry man, sad man, man watching vase with wilted flower on a desk	Literal-1	No
	2	It was a wilted flower.				
41	1	A few days ago, Niels's father fell asleep while watching a war movie on TV. Suddenly, however, a very loud noise coming from the TV woke him up. Niels, what caused the loud noise on the TV?	3	angry man, sad man, man watching TV (exploded bomb shown on the TV)	Literal-2	No
	2	It was an exploded bomb.				
42	1	A few days ago, Niels's father was walking by the sea when, suddenly, voices of people shouting were heard from a distance. Niels's father turned around to see what was going on. Niels, what did your father see in the sea?	3	man watching a sinking ship , sad man, angry man	Literal-2	No
	2	It was a sinking ship				
Manner Implicatures						

43	1	Sander, describe one of the three pictures for me, please!	1, 2, 3	basketball, chair , pink flower	n. a.	Yes
	2	In this picture there is a chair				
44	1	Sander, describe one of the three pictures for me, please!	1, 2, 3	red fruit , banana, green apple	n. a.	Yes
	2	In this picture, there is a red fruit				
45	1	Sander, describe one of the three pictures for me, please!	1	atypical shape with dots , square with dots, triangle	Implicature	No
	2	In this picture, there is a shape with dots				
46	1	Sander, describe one of the three pictures for me, please!	1	motorcycle, atypical vehicle with two wheels , car	Implicature	No
	2	In this picture, there is a vehicle with two wheels				
47	1	Sander, describe one of the three pictures for me, please!	2	turtle, atypical furry animal , cat	Implicature	No
	2	In this picture, there is a furry animal				
48	1	Sander, describe one of the three pictures for me, please!	2	atypical metallic tool , wrench, spoon	Implicature	No
	2	In this picture, there is a metal tool				
49	1	Sander, describe one of the three pictures for me, please!	3	barrel, atypical wooden object , fork	Implicature	No
	2	In this picture, there is a wooden object				
50	1	Sander, describe one of the three pictures for me, please!	3	guitar, trumpet, atypical musical instrument with strings	Implicature	No
	2	In this picture, there is a musical instrument with strings				
51	1	Sander, describe one of the three pictures for me, please!	1		Literal-2	No

	2	In this picture, there is a spoon		atypical metallic tool, wrench, spoon		
52	1	Sander, describe one of the three pictures for me, please!	1	turtle , atypical furry animal, cat	Literal-2	No
	2	In this picture, there is a turtle				
53	1	Sander, describe one of the three pictures for me, please!	2	guitar, trumpet , atypical musical instrument with strings	Literal-2	No
	2	In this picture, there is a trumpet				
54	1	Sander, describe one of the three pictures for me, please!	2	barrel, atypical wooden object, fork	Literal-2	No
	2	In this picture, there is a fork				
55	1	Sander, describe one of the three pictures for me, please!	3	motorcycle, atypical vehicle with two wheels, car	Literal-2	No
	2	In this picture, there is a car				
56	1	Sander, describe one of the three pictures for me, please!	3	atypical shape with dots, square, triangle	Literal-2	No
	2	In this picture, there is a triangle				
57	1	Sander, describe one of the three pictures for me, please!	1	atypical shape with dots, square with dots , triangle	Literal-1	No
	2	In this picture, there is a square				
58	1	Sander, describe one of the three pictures for me, please!	1	motorcycle , atypical vehicle with two wheels, car	Literal-1	No
	2	In this picture, there is a motorcycle				
59	1	Sander, describe one of the three pictures for me, please!	2	turtle, atypical furry animal, cat	Literal-1	No
	2	In this picture, there is a cat				
60	1	Sander, describe one of the three pictures for me, please!	2		Literal-1	No

	2	In this picture, there is a wrench		atypical metallic tool, wrench , spoon		
61	1	Sander, describe one of the three pictures for me, please!	3	guitar , trumpet, atypical musical instrument with strings	Literal-1	No
	2	In this picture, there is a guitar				
62	1	Sander, describe one of the three pictures for me, please!	3	barrel , atypical wooden object, fork	Literal-1	No
	2	In this picture, there is a barrel				
		Contrastive Implicatures				
63	1	In this picture, there is a dolphin	1, 2, 3	bear , dolphin, reindeer	n. a.	Yes
	2	[In your opinion, which one is Martijn's second picture?] ¹				
64	1	In the first picture, there is a box. In the second picture, there is something pink.	1, 2, 3	box, pink dress , frog	n. a.	Yes
	2	[In your opinion, which one is Martijn's second picture?]				
65	1	In this picture, there is an elephant	1	big elephant, small elephant, turtle	Implicature	No
	2	[In your opinion, which one is Martijn's second picture?]				
66	1	In this picture, there is an open window	1	closed window , dog, open window	Implicature	No
	2	[In your opinion, which one is Martijn's second picture?]				
67	1	In this picture, there is a window	2	closed window, dog , open window	Implicature	No
	2	[In your opinion, which one is Martijn's second picture?]				
68	1	In this picture, there is an old shoe	2	cat, old shoe, new shoe	Implicature	No

	2	[In your opinion, which one is Martijn's second picture?]				
69	1	In this picture, there is a big elephant	3	big elephant, small elephant , turtle	Implicature	No
	2	[In your opinion, which one is Martijn's second picture?]				
70	1	In this picture, there is a shoe	3	cat , old shoe, new shoe	Implicature	No
	2	[In your opinion, which one is Martijn's second picture?]				
71	1	In this picture, there is a cat	1	cat, new shoe , old shoe	Literal-1	No
	2	[In your opinion, which one is Martijn's second picture?]				
72	1	In this picture, there is a lion	1	lion, old shoe , new shoe	Literal-1	No
	2	[In your opinion, which one is Martijn's second picture?]				
73	1	In this picture, there is a horse	2	red apple , boy , horse	Literal-1	No
	2	[In your opinion, which one is Martijn's second picture?]				
74	1	In this picture, there is a turtle	2	big elephant , small elephant , turtle	Literal-1	No
	2	[In your opinion, which one is Martijn's second picture?]				
75	1	In this picture, there is a dog	3	open window , closed window , dog	Literal-1	No
	2	[In your opinion, which one is Martijn's second picture?]				
76	1	In this picture, there is a parrot	3	parrot, open window , closed window	Literal-1	No
	2	[In your opinion, which one is Martijn's second picture?]				
77	1	In the first picture, there is a sandwich. In the second picture, there is something black.	1	black umbrella , sandwich, lion	Literal-2	No
	2	[In your opinion, which one is				

		Martijn's second picture?]				
78	1	In the first picture, there is a chair. In the second picture, there is something yellow.	1	chair, turtle, yellow banana	Literal-2	No
	2	[In your opinion, which one is Martijn's second picture?]				
79	1	In the first picture, there is a boy. In the second picture, there is something red.	2	red apple , boy, horse	Literal-2	No
	2	[In your opinion, which one is Martijn's second picture?]				
80	1	In the first picture, there is a desk. In the second picture, there is something white.	2	desk, parrot, white bird	Literal-2	No
	2	[In your opinion, which one is Martijn's second picture?]				
81	1	In the first picture, there is a girl. In the second picture, there is something blue.	3	cat, girl, blue car	Literal-2	No
	2	[In your opinion, which one is Martijn's second picture?]				
82	1	In the first picture, there is a burger. In the second picture, there is something green.	3	dog, burger, green leaf	Literal-2	No
	2	[In your opinion, which one is Martijn's second picture?]				
		Irony				
83	1	Wouter, I know that you like having fruits for dessert and you have said this to me many times.	1, 2, 3	apple , ice-cream, chocolate cake	n. a.	Yes
	2	Here is an apple				
	3	Here is an ice cream				
	4	And here is a chocolate cake				
	5	Would you like the apple for dessert now?				

	6	Yes, you know how much I like fruits!				
84	1	Wouter, I know that you want a musical instrument for your birthday and that you definitely don't like clothes as a birthday present. But a coat would be a nice present too.	1, 2, 3	coat, toy robot, guitar	n. a.	Yes
	2	Here is a coat				
	3	Here is a toy robot				
	4	And here is a guitar				
	5	Do you want the coat as a birthday present?				
	6	No, you know how much I hate clothes as a birthday present!				
85	1	Wouter, I know that you like playing football and that you definitely don't like reading in your free time. But reading a story book could be interesting.	1	toy car, story book, football	Implicature	No
	2	Here is a toy car				
	3	Here is a story book				
	4	And here is a football				
	5	Would you like to read the story book, now?				
	6	Yes, you know how much I like reading in my free time!				
86	1	Wouter, I know that you like drinking orange juice and that you definitely don't like milk with lunch. But a glass of milk would be nice with lunch.	1	glass of orange juice , glass of cola, glass of milk	Implicature	No
	2	Here is a glass of orange juice				
	3	Here is a glass of cola				
	4	And here is a glass of milk				
	5	Would you like the glass of milk with your lunch, now?				
	6	Yes, you know how much I like milk with lunch!				

87	1	Wouter, I know that you like spaghetti and that you definitely don't like vegetables for lunch. But a salad would be nice for lunch.	2	salad, burger, spaghetti	Implicature	No
	2	Here is a salad				
	3	Here is a burger				
	4	And here is some spaghetti				
	5	Would you like the salad for lunch, now?				
	6	Yes, you know how much I like vegetables for lunch!				
88	1	Wouter, I know that blue is your favourite colour for clothes and that you definitely don't like red clothes. But a red jacket would be nice to wear.	2	green jacket, blue jacket , red jacket	Implicature	No
	2	Here is a green jacket				
	3	Here is a blue jacket				
	4	And here is a red jacket				
	5	Would you like to wear the red jacket, now?				
	6	Yes, you know how much I like red clothes!				
89	1	Wouter, I know that maths is your favourite subject at school and that you definitely don't like music. But reading a music book could be interesting.	3	music book, maths book , geography book	Implicature	No
	2	Here is a music book				
	3	Here is a maths book				
	4	And here is a geography book				
	5	Would you like the music book as a gift, now?				
	6	Yes, you know how much I like music!				

90	1	Wouter, I know that you like dogs and that you definitely don't like birds as a pet. But a parrot could be a nice pet too.	3	dog , parrot, cat	Implicature	No
	2	Here is a dog				
	3	Here is a parrot				
	4	And here is a cat				
	5	Would you like the parrot as your pet, now?				
	6	Yes, you know how much I like birds as a pet!				
91	1	Wouter, I know that you like vegetables for lunch and you have said this to me many times.	1	salad , burger, spaghetti	Literal-1	No
	2	Here is a salad				
	3	Here is a burger				
	4	And here is some spaghetti				
	5	Would you like the salad for lunch, now?				
		Yes, you know how much I like vegetables for lunch!				
92	1	Wouter, I know that red is your favourite colour for clothes and you have said this to me many times.	1	green jacket, blue jacket, red jacket	Literal-1	No
	2	Here is a green jacket				
	3	Here is a blue jacket				
	4	And here is a red jacket				
	5	Would you like to wear the red jacket, now?				
	6	Yes, you know how much I like red clothes!				
93	1	Wouter, I know that music is your favourite subject at school and you have said this to me many times.	2	music book, maths book, geography book	Literal-1	No
	2	Here is a music book				
	3	Here is a maths book				

	4	And here is a geography book				
	5	Would you like the music book as a gift, now?				
	6	Yes, you know how much I like music!				
94	1	Wouter, I know that you like birds as a pet and you have said this to me many times.	2	dog, parrot , cat	Literal-1	No
	2	Here is a dog				
	3	Here is a parrot				
	4	And here is a cat				
	5	Would you like the parrot as your pet, now?				
	6	Yes, you know how much I like birds as a pet!				
95	1	Wouter, I know that you like reading in your free time and you have said this many times.	3	toy car, story book , football	Literal-1	No
	2	Here is a toy car				
	3	Here is a story book				
	4	And here is a football				
	5	Would you like to read the story book, now?				
	6	Yes, you know how much I like reading in my free time!				
96	1	Wouter, I know that you like drinking milk with lunch and you have said this to me many times.	3	glass of orange juice, glass of cola, glass of milk	Literal-1	No
	2	Here is a glass of orange juice				
	3	Here is a glass of cola				
	4	And here is a glass of milk				
	5	Would you like the glass of milk with your lunch, now?				
	6	Yes, you know how much I like milk with lunch!				

97	1	Wouter, I know that maths is your favourite subject at school and that you definitely don't like music. But reading a music book could be interesting.	1	music book, maths book , geography book	Literal-2	No
	2	Here is a music book				
	3	Here is a maths book				
	4	And here is a geography book				
	5	Would you like the music book as a gift, now?				
	6	No, you know how much I hate music!				
98	1	Wouter, I know that you like dogs and that you definitely don't like birds as a pet. But a parrot could be a nice pet too.	1	dog , parrot, cat	Literal-2	No
	2	Here is a dog				
	3	Here is a parrot				
	4	And here is a cat				
	5	Would you like the parrot as your pet, now?				
	6	No, you know how much I hate birds as a pet!				
99	1	Wouter, I know that you like playing football and that you definitely don't like reading in your free time. But reading a story book could be interesting.	2	toy car, story book, football	Literal-2	No
	2	Here is a toy car				
	3	Here is a story book				
	4	And here is a football				
	5	Would you like to read the story book, now?				
	6	No, you know how much I hate reading in my free time!				
100	1	Wouter, I know that you like drinking orange juice and that you definitely don't like milk with lunch. But a glass of milk would be nice with lunch.	2	glass of orange juice , glass of cola, glass of milk	Literal-2	No

	2	Here is a glass of orange juice				
	3	Here is a glass of cola				
	4	And here is a glass of milk				
	5	Would you like the glass of milk with your lunch, now?				
	6	No, you know how much I hate milk with lunch!				
101	1	Wouter, I know that you like spaghetti and that you definitely don't like vegetables for lunch. But a salad would be nice for lunch.	3	salad, burger, spaghetti	Literal-2	No
	2	Here is a salad				
	3	Here is a burger				
	4	And here is some spaghetti				
	5	Would you like the salad for lunch, now?				
	6	No, you know how much I hate vegetables for lunch!				
102	1	Wouter, I know that blue is your favourite colour for clothes and that you definitely don't like red clothes. But a red jacket would be nice to wear.	3	green jacket, blue jacket , red jacket	Literal-2	No
	2	Here is a green jacket				
	3	Here is a blue jacket				
	4	And here is a red jacket.				
	5	Would you like to wear the red jacket, now?				
	6	No, you know how much I hate red clothes!				

¹ Correct response(s) is(are) given in bold.

² Stimuli in brackets were presented in written form.

Note. n. a.=not applicable.

2. List of linguistic materials in the binary judgment part (scalar implicatures) of the pragmatics test (translated in English from Dutch)

Item	Version	Target utterance	Visual display	Condition	Expected Response
		Practice items			
103	1	There are squares on none of the cards.	5/5	n. a.	Incorrect
104	1	There are rings on all of the cards.	5/5	n. a.	Correct
105	2	There are hearts on all of the cards.	5/5	n. a.	Correct
106	2	There are rings on all of the cards.	3/5	n. a.	Incorrect
107	3	There are stars on none of the cards.	0/5	n. a.	Correct
108	3	There are squares on all of the cards.	3/5	n. a.	Incorrect
		Test items			
109	1	There are hearts on some of the cards.	5/5	Implicature	Correct
					Incorrect
110	1	There are stars on some of the cards.	5/5	Implicature	Correct
					Incorrect
111	2	There are moons on some of the cards.	5/5	Implicature	Correct
					Incorrect
112	2	There are squares on some of the cards.	5/5	Implicature	Correct
					Incorrect
113	3	There are suns on some of the cards.	5/5	Implicature	Correct
					Incorrect
114	3	There are rings on some of the cards.	5/5	Implicature	Correct
					Incorrect
116	3	There are hearts on some of the cards.	3/5	Literal-1	Correct
47	3	There are stars on some of the cards.	3/5	Literal-1	Correct
114	1	There are moons on some of the cards.	3/5	Literal-1	Correct
114	1	There are squares on some of the cards.	3/5	Literal-1	Correct
118	2	There are suns on some of the cards.	3/5	Literal-1	Correct
118	2	There are rings on some of the cards.	3/5	Literal-1	Correct

118	3	There are moons on some of the cards.	0/5	Literal-2	Incorrect
118	3	There are squares on some of the cards.	0/5	Literal-2	Incorrect
114	1	There are suns on some of the cards.	0/5	Literal-2	Incorrect
114	1	There are rings on some of the cards.	0/5	Literal-2	Incorrect
115	2	There are hearts on some of the cards.	0/5	Literal-2	Incorrect
127	2	There are stars on some of the cards.	0/5	Literal-2	Incorrect
115	1	There are moons on all of the cards.	5/5	Filler	Correct
116	1	There are moons on none of the cards.	0/5	Filler	Correct
117	3	There are moons on none of the cards.	3/5	Filler	Incorrect
119	3	There are moons on all of the cards.	5/5	Filler	Correct
115	1	There are squares on all of the cards.	5/5	Filler	Correct
116	1	There are squares on none of the cards.	0/5	Filler	Correct
117	3	There are squares on none of the cards.	3/5	Filler	Incorrect
119	3	There are squares on all of the cards.	5/5	Filler	Correct
115	1	There are suns on all of the cards.	3/5	Filler	Incorrect
	1	There are suns on none of the cards.	3/5	Filler	Incorrect
117	2	There are suns on none of the cards.	3/5	Filler	Incorrect
119	2	There are suns on all of the cards.	5/5	Filler	Correct
115	1	There are rings on all of the cards.	3/5	Filler	Incorrect
116	1	There are rings on none of the cards.	3/5	Filler	Incorrect
117	2	There are rings on none of the cards.	3/5	Filler	Incorrect

119	2	There are rings on all of the cards.	5/5	Filler	Correct
115	2	There are hearts on all of the cards.	3/5	Filler	Incorrect
116	2	There are hearts on none of the cards.	0/5	Filler	Correct
117	3	There are hearts on none of the cards.	0/5	Filler	Correct
119	3	There are hearts on all of the cards.	3/5	Filler	Incorrect
44	2	There are stars on all of the cards.	3/5	Filler	Incorrect
45	2	There are stars on none of the cards.	0/5	Filler	Correct
46	3	There are stars on none of the cards.	0/5	Filler	Correct
48	3	There are stars on all of the cards.	3/5	Filler	Incorrect
<i>Note.</i> n. a.=not applicable					

Appendix SB: Additional analyses and methodological information

1. Extended analyses on whether pragmatic interpretations take longer to process than literal interpretations

For each type of pragmatic meaning, we examined whether pragmatic interpretations were slower than literal interpretations.

1.1 Irony

For critical trials, there were, overall, 114 correct and 148 incorrect responses. In 136 of the incorrect responses, the literal picture was selected. We initially compared correct pragmatic responses to critical items (114 responses, mean=5445, $SE=846$) and correct literal responses to Literal-2 (250 responses, mean=1954, $SE=138$) and Literal-1 items (260 responses, mean=1236, $SE=77$). To do so, we specified a model with Condition (Pragmatic, Literal-1, Literal-2) as a within-subjects factor and by-subject and by-item random intercepts.

Removing the Condition factor from the initial model significantly changed the fit of the model ($\chi^2(2)=29.093$, $p<.05$). Pairwise contrasts showed that children responded significantly slower to ironic items as compared to both Literal-2 (estimate=3489.1, $SE=540.2$, $z=6.459$, $p<.05$) and Literal-1 items (estimate=4186.9, $SE=537.5$, $z=7.789$, $p<.05$).

Next, we compared correct pragmatic responses (16 responses, mean=5953, $SE=1685$) and incorrect literal responses to critical items (16 responses, mean=2296, $SE=688$) for those participants who replied in both ways (i.e., giving one literal and one ironic response). We specified a model with Condition as a within-subjects factor (Pragmatic, Literal), and by-subject and by-item random intercepts. Removing the Condition effect indicated a significant change in the fit of the model ($\chi^2(1)=4.43$, $p<.05$) in that pragmatic interpretations were slower than literal interpretations of critical items (estimate=-3393, $SE=1570$, $t=-2.161$).

We also compared pragmatic (98 responses, mean=5362, $SE=948$) and literal responses (120 responses, mean=2072, $SE=233$) to critical items for those participants who responded

uniformly (i.e., either giving only pragmatic responses or only literal responses to the two critical items). We specified a model with Condition as a between-subjects factor (Pragmatic, Literal) and by-subject and by-item random intercepts. Again, this analysis indicated a significant effect of Condition ($\chi^2(1)=9.088$, $p<.05$) in that pragmatic responses were significantly slower than literal responses (estimate=-3308.4, $SE=1087.4$, $t=-3.043$). In sum, results from this sub-test provide strong evidence that ironic interpretations incur a processing cost relative to literal interpretations.

1.2 Metaphor

For the critical items, there were 114 correct responses and 146 incorrect responses. In 115 of the incorrect cases, children selected the literal picture. First, we compared reaction times (RTs) for correct pragmatic responses (114 responses, mean=5301, $SE=347$) to RTs for correct Literal-1 (258 responses, mean=1953, $SE=59$) and Literal-2 responses (257 responses, mean=2151, $SE=56$). We specified a model with Condition (Pragmatic, Literal-1, Literal-2) as a within-subjects factor, and by-subject and by-item random intercepts. Comparing this model to a model without the Condition factor, showed a significant effect of Condition ($\chi^2(2)=30.357$, $p<.05$). Pairwise contrasts revealed that pragmatic responses to critical items were significantly slower than literal responses to both Literal-1 (estimate=3228.8, $SE=508.2$, $z=6.354$, $p<.05$) and Literal-2 items (estimate=3423, $SE=384$, $z=8.894$, $p<.05$).

Next, we compared correct pragmatic responses (15 responses, mean=4086, $SE=500$) and incorrect literal responses (15 responses, mean=3144, $SE=374$) to critical items for those participants who responded in both ways. The initial model included Condition (Pragmatic, Literal) as a within-subjects factor and by-subject and by-item random intercepts. Comparing this model to a model without the Condition factor showed a non-significant effect of Condition ($\chi^2(1)=2.72$, $p=.099$).

We also compared pragmatic responses (99 responses, mean=5485, $SE=390$) and literal responses (100 responses, mean=4174, $SE=440$) to critical items for those participants who responded uniformly, either with a pragmatic response or with a literal response to both critical items. We specified a model with Condition as a between-subjects factor and by-subject and by-item random intercepts. Removing the Condition factor resulted in a significant change in the fit of the model ($\chi^2(1)=4.17, p < .05$). The significant effect of Condition indicated that pragmatic responses took longer than literal responses (estimate=-1300, $SE=635, t=-2.045$). Thus, as in the case of irony, results from this sub-test suggest that metaphorical interpretations are associated with a processing cost relative to literal interpretations.

1.3 Scalar implicatures

For critical items, there were, overall, 205 implicature responses and 71 literal responses. First, we compared RTs for correct implicature responses to critical items (205 responses, mean=1754, $SE=76$) and correct literal responses in the Literal-1 (260 responses, mean=1274, $SE=42$) and Literal-2 (269 responses, mean=1412, $SE=39$) conditions. We specified a model with Condition (Pragmatic, Literal-1, Literal-2) as a within-subjects factor and by-subject and by-item random intercepts. Removing the Condition factor from this model showed a significant effect of Condition ($\chi^2(2)=17.7, p < .05$). Pairwise contrasts revealed that implicature responses to critical items were significantly slower than literal responses in both the Literal-1 (estimate=448, $SE=83.66, z=5.367, p < .05$) and Literal-2 conditions (estimate=312.73, $SE=83.12, z=3.76, p < .05$).

Next, we compared RTs for implicature responses (26 responses, mean=1684, $SE=248$) and for literal responses (26 responses, mean=1483, $SE=146$) to critical items, for those participants who responded in both ways (giving one pragmatic and one literal response to the two critical items). We specified a model with Condition (Pragmatic, Literal) as a within-subjects factor, and by-subjects and by-item random intercepts. Comparing the initial model to

a model without the Condition factor revealed a non-significant effect of Condition ($\chi^2(1)=0.42, p > .05$).

We also compared implicature (188 responses, mean=1763, $SE=77$) and literal responses (52 responses, mean=1631, $SE=189$) to critical items for those participants who provided either only implicature responses or only literal responses to both critical items. The initial comparison model included Condition (Pragmatic, Literal) as a between-subjects factor and by-subject and by-item random intercepts. Again, the effect of Condition was not significant ($\chi^2(1)=0.39, p > .05$).

1.4 Manner implicatures

Overall, there were 276 responses to critical items in this sub-test. Two hundred and twenty-five of these were correct implicature responses and 49 of these were incorrect responses where the participants selected the literal picture. We initially compared RTs for correct implicature responses in the critical (225 responses, mean=2855, $SE=336$), Literal-1 (272 responses, mean=1355, $SE=98$) and Literal-2 (276 responses, mean=886, $SE=54$) conditions. To do this, we specified a model with Condition (Pragmatic, Literal-1, Literal-2) as a within-subjects factor, and by subject and by-item random intercepts. Results indicated a significant effect of Condition ($\chi^2(2)=18.6, p < .05$). Pairwise contrasts showed that implicature responses to critical items were significantly slower than correct literal responses in the Literal-1 (estimate=1516, $SE=395.8, z=3.832, p < .05$) and Literal-2 (estimate=1984.8, $SE=395.2, z=5.022, p < .05$) conditions.

We also compared RTs for implicature responses (33 responses, mean=3040, $SE=522$) and literal responses (33 responses, mean=5242, $SE=1017$) to critical items for those participants who responded in both ways. We specified a model with Condition (Pragmatic, Literal) as a within-subjects effect and by-item and by-subject random intercepts. Comparing this model to a model without the Condition factor, showed a significant effect of Condition

($\chi^2(1)=5.8084$, $p<.05$), in that literal responses were slower than implicature responses (estimate=3114, $SE=1066$, $t=2.921$). Similar results were obtained when examining the effect of Condition (Pragmatic, Literal) for those participants who gave either only implicature (192 responses, mean=2823, $SE=383$) or only literal responses (16 responses, mean=10596, $SE=3243$) to critical items. We compared a model with Condition as a within-subjects factor, by-item random slopes for the effect of Condition and by-subjects and by-item random intercepts to an identical model without the Condition factor. This analysis indicated a significant effect of Condition ($\chi^2(1)=4.0013$, $p<.05$), in that literal responses were significantly slower than implicature responses to critical items (estimate=9378, $SE=3944$, $t=2.378$).

1.5 Contrastive implicatures

Overall, there were 174 implicature responses and 102 incorrect responses in the critical condition of this sub-test. For this sub-test, we did not compare RTs for implicature and literal responses because, as already noted in the introduction, the items in the three conditions (Pragmatic, Literal-1, Literal-2) were not comparable in any way.

1.6 Relevance implicatures

There were 276 responses in the critical condition of this sub-test, of which 256 were correct and 20 were incorrect. Initially, we compared RTs for correct implicature responses to critical items (256 responses, mean=2428, $SE=135$) and correct literal responses in the Literal-1 (274 responses, mean=1446, $SE=53$) and Literal-2 (263 responses, mean=1333, $SE=73$) conditions. As a reminder, only the items in the Literal-1 condition were constructed to be comparable to the critical items. We specified a model with Condition (Pragmatic, Literal-1, Literal-2) as a within-subjects factor, and by-item and by-subject random intercepts. Removing Condition from the model showed a significant effect ($\chi^2(2)=13.291$, $p>.05$). Pairwise contrasts indicated that implicature responses were significantly slower than literal responses in the Literal-1

(estimate=1002.5, $SE=302.2$, $z=3.317$, $p<.05$) and Literal-2 (mean=1112.7, $SE=302.7$, $z=3.676$, $p<.05$) conditions. We did not compare correct and incorrect responses to critical items because there were too few incorrect literal responses and because an incorrect response in the critical condition did not necessarily indicate a literal interpretation (there was no picture that corresponded to a literal interpretation of the target statement).

2. Method of quantifying aspects of bilinguals' and bi-dialectals' language experience from the questionnaire

Overall exposure to/use of each language/dialect for bilinguals/bi-dialectals was calculated by averaging parents' responses to the items concerning language/dialect exposure/use (on a scale 0-4, with a higher score indicating more exposure/use) from the questionnaire. A score was calculated for each of the child's languages/dialects. For bilingual children, this score was always lower for Dutch than for French, indicating that they were all dominant in French. Thus, for all bilingual children, the Dutch score indicated overall exposure to/use of a second language. For bi-dialectals, the West-Flemish score was lower than the Dutch score for 26 children. For these bi-dialectals, the West-Flemish score indicated their exposure to/use of a second dialect. The opposite was true for 19 bi-dialectals. For these children, the Dutch score reflected their overall exposure to/use of a second language. For all children, degree of balanced bilingualism or bi-dialectalism was calculated by dividing the score for the language/dialect of less exposure/use by the score for the language/dialect of most exposure/use. The resulting score ranged from zero to one, with a higher value indicating more balanced exposure to/use of two languages or dialects.

3. Method of dividing the bilingual and bi-dialectal groups in sub-groups based on their overall exposure to the Dutch language

Bi-dialectal children were divided into Dutch-dominant ($n=26$, mean age=135 months, $SD=9$) and West Flemish-dominant ($n=19$, mean age=138 months, $SD=8.9$) and bilingual children were divided into balanced bilinguals ($n=26$, mean age=132.4, $SD=6.3$) and unbalanced bilinguals ($n=21$, mean age=132.1, $SD=7.2$). Dutch-dominant bi-dialectal children had higher overall exposure to Dutch than to West Flemish (mean Dutch exposure of 2.9/4, $SD=.47$) and West-Flemish-dominant bi-dialectals had higher overall exposure to West Flemish than to Dutch (mean Dutch exposure of 1.5/4, $SD=.8$). Finally, the balanced bilingual group included those bilinguals who exhibited a degree of balanced bilingualism above the mean of .42 (mean degree of balanced bilingualism of .64, $SD=.15$) and the unbalanced bilingual group consisted of bilinguals with a degree of balanced bilingualism below the mean of .42 (mean degree of balanced bilingualism of .24, $SD=.11$)

Analyses comparing the overall Dutch exposure of the five groups showed significant between-group differences ($F(4, 131)=189.96$, $p<.5$) in that Dutch-dominant bi-dialectals had higher Dutch exposure than West Flemish-dominant bi-dialectals and both bilingual groups; but lower Dutch exposure than monolinguals (all $ps<.05$, Bonferroni correction applied). Moreover, balanced bilinguals had more exposure to Dutch than unbalanced bilinguals and West Flemish-dominant bi-dialectals; and less exposure to Dutch than monolinguals and Dutch-dominant bi-dialectals (all $ps<.05$, Bonferroni correction applied).

Table S1

Descriptive statistics for the accuracy and RT measures (raw values) by the five-level Group factor, Type of Pragmatic Meaning (for accuracy and RTs) and Condition (for RTs only). The table also reports the results from analyses for the effect of Group and the interaction of Group with Type of Pragmatic Meaning (for accuracy) or Condition (for RTs).

	West Flemish-dominant bi-dialectals (<i>n</i> =19)		Dutch-dominant bi-dialectals (<i>n</i> =26)		Monolinguals (<i>n</i> =44)		Unbalanced bilinguals (<i>n</i> =26)		Balanced bilinguals (<i>n</i> =21)		Group effect ¹ χ^2 (df)	Inter. ² χ^2 (df)
Accuracy	Prop.	(<i>SD</i>)	Prop.	(<i>SD</i>)	Prop.	(<i>SD</i>)	Prop.	(<i>SD</i>)	Prop.	(<i>SD</i>)		
Scalars	0.58	(0.5)	0.73	(0.45)	0.80	(0.41)	0.77	(0.43)	0.74	(0.45)		
Contrastive	0.58	(0.5)	0.56	(0.50)	0.72	(0.45)	0.63	(0.49)	0.60	(0.50)		
Manner	0.82	(0.4)	0.87	(0.34)	0.78	(0.41)	0.87	(0.34)	0.74	(0.45)		
Metaphor	0.61	(0.5)	0.29	(0.46)	0.51	(0.5)	0.38	(0.49)	0.45	(0.5)		
Irony	0.32	(0.5)	0.52	(0.50)	0.45	(0.50)	0.50	(0.50)	0.31	(0.47)		
											5.3 (4) ⁴	27.4 (16) ^{*4}
											5.2 (4) ⁴	27.4 (16) ^{*4}
Reaction times	Mean	(<i>SD</i>)	Mean	(<i>SD</i>)	Mean	(<i>SD</i>)	Mean	(<i>SD</i>)	Mean	(<i>SD</i>)		
Scalars												
Pragmatic	1647	(832)	1508	(526)	1893	(1359)	1659	(787)	1858	(1323)		
Literal-1	1172	(532)	1217	(347)	1279	(523)	1173	(485)	1526	(1343)		
Literal-2	1350	(459)	1337	(469)	1512	(782)	1241	(402)	1560	(831)		
											9.9 (4) ^{*4}	4.9 (8) ⁴
											13.6 (4) ^{*4}	3.7 (8) ⁴
Contrastive												
Pragmatic	3680	(2618)	2404	(922)	3083	(2012)	3214	(1630)	3683	(3931)		
Literal-1	4250	(2974)	3494	(1447)	4395	(2747)	4983	(5508)	5923	(5447)		
Literal-2	1407	(972)	1376	(627)	1383	(667)	1461	(781)	1633	(967)		
											6.2 (4) ⁴	12.3 (8) ⁴
											6 (4) ⁴	12.2 (8) ⁴
Manner												
Pragmatic	2360	(2857)	2192	(2464)	3056	(5651)	3636	(7301)	2867	(4448)		
Literal-1	1310	(1683)	1261	(1674)	1399	(1775)	1425	(1433)	1398	(1502)		
Literal-2	1088	(1149)	906	(1215)	856	(785)	810	(630)	827	(711)		
											0.5 (4) ⁴	6.2 (8) ⁴
											0.5 (4) ⁴	6.2 (8) ⁴
Metaphor												
Pragmatic	4688	(649)	5387	(5372)	5202	(3372)	5783	(3597)	5539	(3510)		
Literal-1	2020	(860)	1965	(704)	2072	(835)	2238	(1012)	2407	(1008)		
Literal-2	2192	(740)	1894	(984)	1749	(868)	1996	(861)	2167	(1146)		
											4.1 (4) ⁴	3.9 (8) ⁴
											3.4 (4) ⁴	3.7 (8) ⁴
Irony												
Pragmatic	4012	(2504)	2610	(4098)	4507	(5613)	9456	(15906)	6157	(6606)		
Literal-1	1333	(545)	1017	(441)	1223	(1016)	1428	(2354)	1249	(628)		
Literal-2	2142	(1620)	1572	(1170)	1993	(1891)	1683	(1498)	2256	(3569)		
											7.9 (4) ⁴	33.5 (8) ^{*4}
											8.2 (4) ⁴	33.6 (8) ^{*4}

Relevance												
Pragmatic	2125	(1279)	1985	(1185)	2766	(3289)	2503	(1605)	2350	(1141)		
Literal-1	1420	(801)	1425	(666)	1347	(959)	1604	(1025)	1364	(655)		
Literal-2	1362	(1278)	1217	(760)	1379	(1517)	1250	(755)	1469	(1289)		
											5.7 (4) ⁴	9.5 (8) ⁴
											7.1 (4) ⁴	9.5 (8) ⁴

*. p <.05.

¹The results (χ^2 tests) in the first row are based on comparison models that included socioeconomic status and age in months as control variables. The results in the second row are based on comparison models that additionally included vocabulary as a control variable.

²Group by Type interaction for the accuracy measure and Group by Condition interaction for the reaction time measures.

⁴Comparison models included only by-subject and by-item random intercepts.

Note. *n*=number, *SD*=standard deviation, Prop.=proportion correct, Inter.=Interaction, Relevance=sub-test on relevance implicatures, Metaphor=sub-test on metaphors, Manner=sub-test on manner implicatures, Scalars=sub-test on scalar implicatures, Contrastive=sub-test on contrastive implicatures, Pragmatic=condition with critical implicature items, Literal-1=first condition with literal items, Literal-2=second condition with literal items.