CHAPTER 2

From social science concepts-by-intuition to assertions

The first chapter discussed that there are different ways to operationalize a variable of interest. The distinction between concepts-by-postulation and concepts-by-intuition was that some concepts are intuitively clear while others require theoretical and empirical support. In the remainder of Part I of the book we concentrate on the operationalization of concepts-by-intuition. In this chapter we will show how assertions can be formulated for the most common concepts-by-intuition of the social sciences. In doing so, we discuss the linguistic links between these concepts-by-intuition and the different possibilities of their verbal expression in assertions. By use of these rules one can be sure that the assertions generated represent the concept-by-intuition of interest. In the next chapter we will discuss the transition from an assertion to a request for an answer. Any verbal expression of an assertion should at minimum refer to a concept-by-intuition (e.g. behavior, norm, or evaluation) for an object of interest (e.g. government, family, or work). The selection of the concept and object of a request are rather arbitrary but depends mainly on the issue of investigation. Therefore, before we discuss these choices, we will talk about survey items and the link between requests for answers and assertions.

2.1 Description of the components of a survey item

Andrews (1984) defined a survey item as consisting of three different parts of text or components, namely, an introduction, one or more requests for an answer and a response scale. Molenaar (1986) also uses quite similar survey item components. In this chapter we propose to build on their work but to distinguish even more components of a survey item.

In our opinion a survey items can contain the following: an introduction, a motivation, information regarding the content, information regarding a definition, an instruction of the respondent, an instruction of the interviewer, the request for an answer, and response categories or scales. Figure 2.1 summarizes the basic components of a survey item.

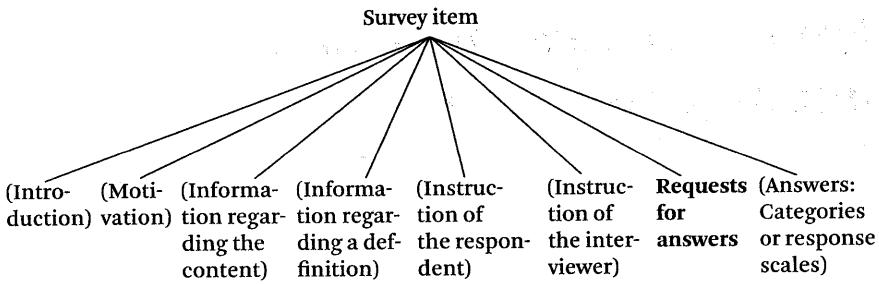

FIGURE 2.1: *Decomposition of a survey item into its components.*

The components indicated within parentheses in Figure 2.1 are optional for the designer of the survey. This implies that the request for an answer is the core unit of a survey item. It also means that the simplest form of a survey item is just an open request for an answer and nothing more. However, Figure 2.1 shows that a survey item can consist of many more components. How many and which ones are frequently used in survey research will be discussed further in Chapter 6. In this chapter we concentrate on the request for an answer.

2.2 ASSERTIONS AND REQUESTS FOR AN ANSWER

In order to clarify the link between basic concepts-by-intuition and verbal expressions of requests, the linguistic components of the sentences that represent the different concepts must be discussed first. The starting point of the discussion is the sentence structure. A *sentence* is defined as a group of words that when written down begins with a capital letter and ends with a full stop, a question mark or an exclamation mark. But, a sentence also can be classified according to its *linguistic meaning* where a distinction is made between *declarative* sentences or *assertions*, *interrogative* sentences or *requests*, *imperative* sentences or *orders*, and *exclamations*. As we will see later in this section, the first three linguistic forms of sentences are used to elicit answers from a respondent, and not only the interrogative form. Therefore, we speak of "requests for answers" and not of questions. The fourth form is not used in survey research.

Most of the items in Table 1.1 (Chapter 1) were declarative sentences or assertions representing specific concepts-by-intuition. The respondents are asked whether they agree or disagree with these assertions. It is not necessary to use such statements. It is also possible to use normal requests. But we will show how an assertion (example 2.1) can be transformed into a request (2.2). The assertion is

2.1 *Immigrants living here should not push themselves where they are not wanted.*

To transform this assertion into a request, we only have to add "Do you think that" then we get

2.2 *Do you think that immigrants living here should not push themselves where they are not wanted?*

In this or similar ways, any statement can be transformed into a request.

It is also possible to transform any request into an assertion (Harris 1978; Givon 1990). The assertion corresponding to the abovementioned request has already been given. Another example of a request is item 8 in Table 1.1. The request was as follows:

2.3 *Has there been much real change in the position of black people in the past few years?*

By inverting the term "there" and the auxiliary verb "has," we obtain from this request the following assertion:

2.4 *There has been much real change in the position of black people in the past few years.*

Similar changes can be performed on any request in order to get an assertion.

Instead of requests or assertions, surveys sometimes use instructions or directives that are called "imperatives" in linguistic terminology. These imperatives can also be transformed into assertions. The following example illustrates this:

2.5a *Tell me if you are in favor of the right of abortion.*

This imperative can be transformed into an assertion as follows:

2.5b *I am in favor of the right of abortion.*

We have shown above that imperatives and interrogatives can be used to elicit answers from the respondents and can also be linguistically transformed into assertions or statements. Although this is true, it should be clear that there are fundamental differences between "requests requiring an answer" and the related assertions. In fact, a request for an answer, whatever the form of the request may be, presents the respondent with a set of possible answers, called the *uncertainty space* by Groenendijk and Stokhof (1997). On the other hand, an assertion is a specific choice from the set. Take example 2.5a, where the request was:

2.5c *Tell me if you are in favor of the right of abortion.*

This request for an answer allows not only for the assertion 2.5d:

2.5d *I am in favor of the right of abortion.*

but equally for the assertion 2.5e

2.5e *I am not in favor of the right of abortion.*

Although this inequality exists between the requests for an answer and the assertions, we prefer to discuss the link between concepts and requests for an answer on the basis of the related assertions. (We need to keep in mind that there is an almost unlimited number of forms for the requests of an answer[1]). The use of assertions therefore simplifies the discussion. In Chapters 3 and 4 we will discuss how these assertions can be transformed into requests for an answer. In order to discuss the link between the basic concepts and their related assertions, the next section introduces the structure of assertions.

2.3 THE BASIC ELEMENTS OF ASSERTIONS

Sentences can be divided into sentence constituents or phrases and their syntactic functional components. In this section we will discuss the decomposition of assertions into these elements in order to determine how concepts-by-intuition can be formulated in assertions and what parts of assertions can indicate the concept-by-intuition that is represented.

In linguistics a simple assertion is decomposed in two main components: a noun phrase (NP) and a verb phrase (VP). A *noun phrase (NP)* consists of one or more words with a noun or pronoun as the main part. A *verb phrase (VP)* is a phrase that has one or more verbs. But next to the verb, verb phrases contain all the remaining words in the sentence outside the noun phrase, which can be complements, objects, or adverbials. The reader should be aware that we use here the definition of verb phrase as employed in transformational generative grammar (Richards et al. 1993: 399). Example 2.6a might illustrate this:

2.6a *Clinton was a good president.*
NP + VP

Example 2.6a shows a *simple sentence or clause* where the NP is "Clinton" and "was a good president" is the VP. Although this decomposition in NP and VP is very common, for our purposes a more detailed decomposition is more useful. This decomposition is indicated in 2.6b and all the following examples. One can always use the distinction between NP and VP but we will concentrate on the parts of these components:[2]

2.6b *Clinton* *was* *a good president.*
Subject + Predicator + Subject Complement.

As example 2.6b illustrates "Clinton" functions as the *subject* that indicates what is being discussed in the sentence. The *predicator* or the verb is "was" and connects the subject with the remaining part of the sentence, which is again

[1] In the survey literature the term "stem" of a question is used (Bartelds et al. 1994; Dillman 2000) in a similar manner to the term assertion, but the term "stem" is used for different meanings. Consequently we prefer the term "assertion."

[2] The linguistic aspect of this section is based on the work of Koning and Van der Voort (1997). We would like to thank dr. Van der Voort for his useful comments on this chapter.

a noun ("president") with an adjective ("good") as modifier of the noun. This specific remaining part expresses what the *subject is* and is therefore called a *subject complement.* Predicators that indicate what a subject is/was or becomes/became are called *link verbs (LV predicator).* Other examples of verbs that can function as link verbs (connecting a subject with a subject complement) are "get," "grow," "seem," "look like," "appear," "prove," "turn out," "remain," "continue," "keep," "make," and so on. (Koning and Van der Voort 1997: 48–49). We suggest that the negations of these verbs are also classified as link verbs, for example: "not look like," "being unlike," and "being different from." According to the linguistic functions of the words, the sentence structure of example 2.6b can be formalized as structure 1:

Structure 1: Subject + LV predicator + subject complement.

It can easily be shown that one can make different assertions that refer to different concepts using this structure. As an illustration, we will create different assertions using as subject "my work" and as link verb "is" while the subject complement varies across the examples:

2.7a *My work is useful.*
2.7b *My work is pleasant.*
2.7c *My work is important.*
2.7d *My work is visible.*

We see by these examples that changing the subject complement (which is each time a different adjective) the sentence refers to a different concept-by-intuition. These examples refer to an evaluation, a feeling, an importance judgment, and a neutral cognitive judgment. We will see later that structure 1 is the basic structure for assertions expressing evaluations, feelings, importance, demographic variables, values, and cognitive judgments.

A second relevant linguistic structure is illustrated in example 2.8a:

2.8a *My mother had washed the clothes.*
Subject + predicator + direct object.

This example has a subject ("my mother"), the predicator "had washed," and a direct object is "clothes." Koning and Van der Voort (1997: 52) define a *direct object* as the person, thing, or animal that is "affected" by the action or state expressed by the predicator. The linguistic structure of example 2.8a thus can be summarized as structure 2:

Structure 2: Subject + predicator + direct object.

It can easily be shown through examples that changing the predicator in this structure, changes the concept-by-intuition that the assertion refers to. In the

examples we always use "I" as subject and "my clothes" as direct object. By varying the predicator we formulate different sentences which refer to different concepts-by-intuition:

2.8b *I washed my clothes.*
2.8c *I should wash my clothes.*
2.8d *I shall wash my clothes.*
2.8e *I prefer to wash my clothes myself.*
2.8f *I hate to wash my clothes.*

Although the subject and the direct object remain the same, variation in the verb changes the meaning of the assertion. In sequence of appearance above, the sentences refer to a behavior, a norm, a behavioral intention, a preference, and a feeling. Note that example 2.8e even displays a second direct object ("myself").

As we will show structure 2 can be used to formulate relations, preferences, duties, rights, actions, expectations, feelings, and behaviour, to name only a few examples. These will be discussed further in the following sections. Structure 2 has predicators called *lexical verbs* in linguistic terminology. This means that these verbs have full meanings on diverse topics in contrast with link verbs (structure 1) Thus the use of various lexical verbs in predicators explains for a great deal why the concepts change in these assertions. Sometimes the lexical verb is preceded by an auxiliary verb such as "should" (2.8c) and "shall" (2.8d). Its function in 2.8c is to modify the lexical verb in the predicator into an obligation, and in this way it contributes to the change of the concept by intuition. In example 2.8d the auxiliary "shall" modifies the lexical verb into the future tense and this contributes again to the change of the concept-by-intuition.

There is a third linguistic structure relevant to the context of expressing assertions. Example 2.9a illustrates its structure:

2.9a	*The position of the blacks*	*has changed.*	
	Subject		+ predicator.

Example 2.9a has a subject "the position of the black" and a predicator "has changed." In linguistics these verbs which are not followed by a direct object are called *intransitive*. The basic structure of these assertions can be summarized in structure 3:

Structure 3: Subject + predicator

It can be shown that the meaning of the sentences is easily changed by changing the predicator as previously in structure 2. However, the number of possibilities is much more limited because of the reduced number of intransi tive verbs. Some examples are provided below:

2.9b *I will go to sleep.*
2.9c *I slept.*

Here the subject is "I" and the first sentence (2.9b) indicates a behavioral intention while the second (2.9c) is a behavior. Here are two more examples:

2.9d *The position of blacks will change.*
2.9e *The position of blacks has changed.*

In 2.9d the subject is "the position of blacks" and the first sentence indicates a future event and the second, 2.9e, a past event. This structure is frequently used to present behavior, behavioral intentions and past and future events.

So far, we have discussed the basic components of three possible linguistic structures of assertions that can be extended with other components, as will be explained in the next sections.

2.3.1 Indirect objects as extensions of simple assertions

The first extra component that can be added to the basic structures discussed above are indirect objects. An *indirect object* is defined as the person and sometimes also the thing that benefits from the action expressed by the predicator and the direct object (Koning and Van der Voort 1997: 56). Examples 2.10a and 2.10b are illustrations:

2.10a	*Honesty*	*is*		*very important*	*to me.*
	Subject +	LV predicator +		subject + complement	indirect object

Example 2.10a has structure 1 but an indirect object "to me" is added to it. Example 2.10b illustrates the same extension for structure 2:

2.10b	*He*	*bought*	*an apartment*	*for his mother.*
	Subject +	predicator +	direct object +	indirect object

In this example the subject "he" is connected by the predicator "bought" and followed by a direct object "apartment" and then an *indirect object* "for his mother." The general structure of this assertion is the same as structure 2 with the addition of an indirect object.

2.3.2 Adverbials as extensions of simple assertions

Another component that can be added to the basic structure is an adverbial. An *adverbial* gives information about when, where, why, how and under what circumstances, or to what degree something takes place, took place or will take place. Adverbials can occur in all three structures and can have quite different forms (Koning and Van der Voort 1997: 59). Examples 2.11, 2.12, and 2.13 illustrate this:

2.11	*Clinton*	*was*	*president*	*from 1992 to 2000.*
	Subject +	predicator +	subject complement +	adverbial.

This is an extension of structure 1 with an adverbial indicating *when* it happened.

2.12 *My mother had washed the clothes in the washing machine.*
Subject + predicator + direct object + adverbial.

This is an extension of structure 2 with an adverbial indicating *the way* it was done.

2.13 *He worked a lot.*
Subject + predicator + adverbial.

This is an extension of structure 3 with an adverbial indicating *a degree* of working.

2.3.3 Modifiers as extensions of simple assertions

Another very common component attached to nouns is a modifier. A *modifier* specifies a noun. The modifiers can be placed before and after the noun and can be related to the subject but also to the object. Examples 2.14, 2.15, and 2.16 illustrate the use of modifiers for the three basic structures.

2.14 *The popular Clinton was president.*
Subject (modifier + noun) + predicator + subject complement

This is an extension of structure 1 with a modifier for the subject Clinton.

2.15 *My mother had washed the dirty clothes.*
Subject + predicator + direct object (modifier + noun).

This is an extension of structure 2 with a modifier of the noun in the direct object.

2.16 *The son of my brother died.*
Subject (noun + modifier) + predicator

This is an extension of structure 3 with a modifier (of my brother) attached to the subject. The noun phrase as a whole including the modifier is seen as the subject not just the main word in the phrase. For that reason we have put the modifier and the noun in brackets because together they form the phrase mentioned before. In this way the basic structure is immediately evident.

2.3.4 Object complements as extensions of simple assertions

Koning and Van der Voort (1997: 54) define the object complement as a noun, adjective or prepositional phrase that follows the direct object and expresses what the direct object is or becomes. Please see examples 2.17 and 2.18 below:

2.17 *They are driving me crazy.*
Subject + predicator + direct object + object complement

2.18 *I consider him as a friend.*
Subject + predicator + direct object + object complement

These structures of 2.17 and 2.18 are the same as structure 2 with an additional object complement "crazy" or "as a friend." Although this kind of expression occurs seldom in survey research, for the sake of completeness it has been presented here.

2.3.5 Some notation rules

So far we have described three distinct forms of assertions that are relevant for concepts-by-intuition in the social sciences.

Structure 1 of an assertion connects the grammatical subject (x) by means of a link verb (I) in the predicator to a subject complement (sc). The form of this assertion is denoted simply by (xIsc). In principle the "sc" could be anything, but the most frequently occurring sc's are denoted as follows:

c denotes a neutral judgment like "large/small," "active/passive," "obvious" etc.
ca denotes a relation such as "(to be) the cause/ reason /source of" etc.
d denotes a demographic variable like "age," "profession," "date of birth/ marriage" etc.
e denotes an evaluation like "good/bad," "valuable," "advantageous/disadvantageous," etc.
f denotes a feeling or affective evaluation such as "nice/awful," "pleasant/ unpleasant," "happy/unhappy," etc.
i denotes "important," "interesting"
pr denotes a preference such as "for/against," "in favor/in disfavor" etc.
ri denotes a right like "permitted/allowed/justified,/accepted" etc.
s denotes "similarity" or "dissimilarity" such as "alike/unlike," similar/ dissimilar" etc.

The subject (x) can also be represented by anything, but we use specific symbols for frequently occurring subjects for coding purposes:

g stands for government or politicians
o denotes anyone or everybody
r denotes the respondent himself
v denotes a value

Structure 2 is denoted by (xPy), where the grammatical subject (x) is connected by the lexical verb (P) to the predicator "y," which contains a direct object in the simplest form. Also the same subjects as mentioned previously can be applicable. In this structure the predicators play a major role. Since there are some very frequently employed lexical verbs for predicators that relate to the intuitional concepts of social science, we will denote them with specific symbols:

C indicates relationships where the subject causes or influences the object
D indicates deeds such as "does," "is doing," "did," or "has done"
E indicates predicators specifying expectations such as "expects," or "anticipates"

F specifies feelings as links such as "like/dislike", "feel"[3] "worry about," etc.
FD indicates a predicator referring to future deeds such as "will," "intends," "wishes"
(H+I) specifies a predicator which contains words like "has to" or "should," "is necessary," etc. followed by an infinitive
HR specifies predicators like "has the right to" or "is allowed to"
J specifies a judgment connector such as "consider," "believe," "think"
PR indicates predicators referring to preferences such as "preferred to"
S indicates relationships where a similarity (closeness) or difference (distance) between the subject and the object is indicated

Structure 3 for assertions will be denoted by (xP). Here the predicator (P) and a subject (x) are present without a direct object. An adverbial can follow the predicator. The same choices can be made for the subject and the predicator as enumerated previously.

Having discussed the basic structures of simple assertions in general the next section will discuss the characteristics of the typical assertions for the most commonly used concepts-by-intuition in survey research.

2.4 CONCEPTS-BY-INTUITION IN SURVEY RESEARCH

In this section we will describe how assertions that are characteristic of the concepts-by-intuition employed in survey research can be generated. Most researchers dealing with survey research (Oppenheim 1966; Sudman and Bradburn 1983; Bradburn and Sudman 1988; Smith 1987) make a distinction between factual or demographic requests, requests of "opinion" or "attitudes" and where they arise, requests of knowledge and behavior. The terms *opinion* and *attitude* are often used in these studies for any type of subjective variables. "Attitude" is not discussed here because we consider attitudes as concepts-by-postulation. Since we want to make a distinction between different kinds of opinions, the term "opinion" itself is also not used in this book.

In the sections that follow the structure of the connected assertions are introduced for different concepts. We start with so called subjective variables.

2.4.1 Subjective variables

By subjective variables, as stated, we understand variables for which the information can only be obtained from a respondent because the information exists only in his/her mind. The following concepts-by-intuition are discussed: evaluations, importance judgments, feelings, cognitive judgments, perceived relationships between the x and y variables, evaluative beliefs, preferences, norms, policies, rights, action tendencies and expectations of future events. We begin with evaluations.

[3] Note that verbs such as "like," "feel," and "resemble" are linguistically mostly considered as linking verbs followed by a subject complement. However, we prefer to classify them according to their semantic meaning as feelings and similarity like lexical verbs. But the part that follows should grammatically always be considered as a subject complement.

Evaluations are seen by most researchers as concepts-by-intuition of attitudes (Fishbein and Ajzen 1975; Bradburn and Sudman 1988; Van der Pligt and de Vries 1995; Tesser and Martin 1996). Their structure (xIe) generates assertions that certainly are expressions of "evaluations" (a_e). Typical for such assertions is that the subject complement is evaluative. Examples of evaluative words are good/bad, positive/negative, perfect/imperfect, excellent/poor, superior/inferior, favorable/unfavorable, satisfactory/unsatisfactory, sufficient/insufficient, advantageous/disadvantageous, useful/useless, profitable/unprofitable, lucrative/unlucrative, and so on. Examples 2.19 and 2.20 are typical examples of assertions indicating an evaluation:

2.19 *Clinton was a good president.*

It is very clear that this assertion indicates an evaluation: the (x) is "Clinton," the evaluative subject complement (e) is "a good president" and the link verb predictor (I) is "was."

2.20 *Their work was perfect.*

Also this is clearly an evaluative assertion where the subject is "their work," the linking verb is "was," and the subject complement is "perfect." Using structure 1 combined with an evaluative subject complement ensures that the assertion created is an evaluation of the chosen subject.

Importance is the next concept to discuss. The structure of an "importance" assertion (a_i) is (xIi) which means "x is important." This assertion has the same form as the assertions indicating evaluations. The only difference is that the subject complement is in this case an expression of "importance." Example 2.21 illustrates this:

2.21 *My work is important.*

"My work" is the subject (x) and "important" represents the subject complement (i), while "is" is the link verb (I). Values are often used as subjects. A value (v) can be defined as a basic goal or state for which individuals strive such as "honesty," "security," "justice," and "happiness" (Rokeach 1973; Schwartz and Bardi 2001). A typical example is:

2.22 *Honesty is very important to me.*

In example 2.22 (x) is the value "honesty," the predicator (I) is "is," and "very important" is the subject complement of "honesty," while "to me" is an indirect object. There is no doubt that assertions generated with structure 1 and an importance subject complement represent importance judgments.

Feelings or affective evaluations have in the past been considered as belonging to evaluations (Bradburn and Sudman 1988; Van der Pligt and de

Vries 1995). However, more recently a distinction has been made between cognitive evaluations and affective evaluations or feelings (Abelson et al. 1982; Zanna and Rempel 1988; Bagozzi 1989; Ajzen 1991). Three basic assertions can be formulated to express feelings. First, (a_f) can be in the form of (xIf) as example 2.23 illustrates:

2.23 My work is nice.

Example 2.23 reads as follows: (x) is "my work," (I) is the link verb predicator "is," and (f) is the *affective* subject complement "nice." It will become clear that other feeling words can be used as a subject complement, which will be discussed. However, structure 1 combined with a feeling subject complement generates an assertion that expresses a feeling with certainty.

The second structure that can be used to express feelings is (xFy), which is an example of structure 2 discussed previously. An example is assertion 2.24:

2.24 I like my work.

In the case of 2.24, "I" is (x), the verb in the predicator "like" is a feeling (F), and "my work" is grammatically a subject complement (see note 3). There is no doubt that this assertion expresses a feeling toward "my work." It is also quite clear that other feelings can be expressed by using a different feeling verb like "hate" or any other feeling word, as in 2.25. Therefore structure 2 with a predicator as a verb that expresses a feeling generates an assertion that represents a feeling.

The third possible structure is (xPy_f) as shown by example 2.25:

2.25 Politicians make me angry.

Example 2.25 reads as follows: (x) is "politicians," (P) stands for the verb form "make," while "me" is the direct object and "angry," expressing a feeling (f), is the object complement. This is one of the few examples of this structure in survey research. Nevertheless, combining structure 2 with a feeling object complement will generate an assertion that will also express a feeling.

Thus (f) or (F) stands for feelings (fear, disgust, anger, sadness, contempt, shame, humility, hope, desire, happiness, surprise, etc.) (Cornelius 1996) that could be grammatically either *lexical verbs* (frighten, fear, scare, terrify, disgust, offend, repulse, enrage, infuriate, despise, disdain, reject, surprise, amaze, astonish etc.) or *subject or object complements* (afraid, distressed, ashamed angry, disappointed, happy, lucky, crazy, etc.).

With "f" the subject or object complement form is denoted and with "F" the lexical verb in the predicator is indicated. The use of "f" or "F," makes a difference in the structure of the assertion but not in the concept presented.

Cognitions have been discussed in the psychology literature as one of the basic components of an attitude (Krech and Crutchfield 1948; Bradburn and Sudman 1988; Ajzen 1989; Eagly and Chaiken 1993; Van der Pligt and de Vries 1995). Two kinds of cognition have been mentioned in the literature. The first

is a *cognitive judgment*. The structure of an assertion representing a cognitive judgment (a_j) is (xIc), which denotes that x has characteristic c. We use c to indicate that a specific type of subject complement must be used. Subject complements of cognitive judgments pertain to neutral connotations such as active/passive, requestable/unrequestable, limited/unlimited, aware/unaware, reasonable/unreasonable, usual/unusual, regular/irregular, ordinary/extraordinary, conservative/progressive, direct/indirect, big/small, slow/quick, left/right, planned/unplanned, practical/impractical, flexible/inflexible, heavy/light, predictable/unpredictable, and so on. It is important to note that the main requirement is that the subject complements do not represent "evaluations," "feelings," and "importance." Example 2.26 displays a typical assertion of a cognitive judgment:

2.26 Our family was large.

In 2.26 the subject complement (sc) is the neutral term "large." This example shows that structure 1 combined with a neutral subject complement will generate assertions that express cognitive judgments.

The second concept in the class of cognitions is *a relationship* between a subject x and an object y. However, we need to make a distinction between two relationships: *causal relationships* and *similarity or dissimilarity and connectedness relationships*.

Causal relationships are, for example, studied in attribution theory (Kelley and Michela 1980). There are two structures for causal relationships (a_c): Structure 1 and structure 2. Structure 1 can be used if the subject complement indicates a cause (xCsc). Example 2.27 illustrates this possibility.

2.27 New laws were the cause of the change of the position of black people.

There is no doubt that example 2.27 represents a causal relationship where "new laws" (x) is the subject, "were" (I) is the link verb, and "the cause of the change of the position of black people" is the subject complement (sc) with several modifiers.

Structure 2 combined with *a causal or influence predicator* is also typical for assertions indicating a causal relationship. The formal structure can be represented by (xCy), which means (x has a causal relationship with y). Examples of cause or influence indicating lexical verbs are produce, bring about, provoke, create, replace, remove, alter, affect, accomplish, achieve, attain, or lead to. All are used in the sense of being the outcome or consequence of something. Note that relations are expressed by lexical verbs and not adjectives. Example 2.28 is an assertion which indicates a causal relationship:

2.28 New laws have changed the position of black people.

Example 2.28 indicates a causal relationship where the (x) "new laws" have changed (C) "the position of black people" (y). This example demonstrates that

structure 2 assertions with a causal predicator will always indicate a causal relationship.

Other types of relationships frequently studied in social science refer to the *similarity/dissimilarity* or *distance/closeness* between objects (e.g. Rabinowitz et al.1991; Stokes 1963) or *connectedness between subjects* (Harary 1971; Helmers et al. 1975, Knoke and Kuklinski 1982; Ferligoj and Hlebec 1999). Examples include being attached to, resembling, being similar, identical/different, being like/unlike, being close. To express such similarity relations in assertions (a_s) structure 1 can be used with a similarity or dissimilarity expressed in the subject complement (xIs) or structure 2 with a similarity or dissimilarity expressing predicator (xSy). We start by illustrating the use of structure 1. An example of the relationship in the sense of membership is found in 2.29:

2.29 *He is strongly attached to the Labor Party.*

In example 2.29 the (x) is "He," the link verb predicator (I) is "is," and the subject complement is " strongly attached" followed by an indirect object " to the Labor Party." To indicate dissimilarity one can use a negation of the assertion in 2.29 "do not resemble" or " are different from." Example 2.30 is an example of a dissimilarity assertion:

2.30 *The Republicans are different from Democrats.*

In example 2.30 the (x) is "Republicans," the link verb predicator (I) is "are" and then follows the subject complement "different" with the indirect object "from the Democrats," expressing the negation of similarity.

So far we have shown that structure 1 can be used to express similarity relations. However, structure 2 can also be used for the same purpose as the following three examples illustrate. A first example is given in 2.31:

2.31 *European Liberals resemble American Conservatives.*

Here the subject (x) "European Liberals" is said to "resemble," the predicator (S) and the (y) is "American Conservatives." The reader should be aware as stated previously (note 3) that we consider "resemble" as a lexical verb but the "y" (American Conservatives) that follows is grammatically a subject complement. A second example is presented in 2.32.

2.32 *Republicans differ from Democrats.*

In this example "Republicans" are again the subject (x), the predicator indicating dissimilarity (S) is "differ from" and the direct object (y) is "Democrats."

Example 2.33 expresses the same concept-by-intuition by employing structure 3

2.33 *Their opinions varied*

In this example "Their opinions" is the subject and the dissimilarity predicator is "varied."

Assertions about relationships indicate the views that respondents hold about the relationship between a subject and an object and not just about one subject. In this respect, relational assertions provide a different type of information than cognitive judgments, although both have been called *cognitions* in the academic literature as long as the assertions indicate neutral judgments.

Preferences are frequently asked in consumer research, election studies, and in studies of policies where items from the most preferred to the least preferred are compared (Torgerson 1958; Von Winterfeld and Edwards 1986). The structure of a preference assertion (a_{pr}) is embedded in structure 2 with a lexical verb in the predicator, indicating preference and denoted as xPRyz..., which means (x prefers y above z...) as in the example 2.34:

2.34 *I prefer the Socialist Party above the Conservative and Liberal Party.*

Here "I" indicates (x), "prefer" is the preference verb (PR), the direct object (y) is "the Socialist Party," and the text "above the Conservative and Liberal Party" indicates an object complement (z). As 2.34 demonstrates, several items are compared, and one is preferred to the others. Often no explicit comparison is made but the assertion is based on an implicit comparison. Example 2.35 displays this form:

2.35 *I favor a direct election of the president.*

In example 2.35 "I" indicates again (x), "favor" is the preference verb (P), and (y) contains only a direct object with a modifier "a direct election of the president." This assertion thus indicates explicitly the preference of a direct election of the president. Implicit in this assertion is the comparison with the opposite of direct elections which are indirect elections.

Another frequently occurring type of assertion indicating a preference in survey research pertains to structure 1and is indicated by (xIpr). Examples 2.36 and 2.37 illustrate this:

2.36 *I am for abortion.*

2.37 *I am against abortion.*

In these examples "I" indicates the subject, in this case, the respondent (r), the link verb predicator is "am", while "for abortion " (2.36) and "against abortion" (2.37) are preference subject complements (p). In these cases the explicit preference is expressed in the subject complement.

Norms are also central to social research (Sorokin 1928; Parsons 1951; Homans 1965). Coleman (1990: 242) defines them as specifications of "what actions are regarded by a set of persons (o) as proper or correct." Structure 2 with an obligation indicating word (H) in the predictor followed by an infinitive (I) can be used to express a norm (a_n)= (o(H+I)y), which means that someone should do something to the direct object (y). Example 2.38 illustrates this concept:

2.38 Immigrants should adjust to the culture in their new country.

In example 2.38 the "immigrants" are the persons (o) for whom this norm holds, "should" stands for the obligation indicating part (H) of the predicator, which also contains the infinitive "adjust to" (H + I), while the direct object (y) with a modifier is "the culture in their new country." For norms also structure 3 can be used as the following example illustrates:

2.39 The children should go to sleep.

This assertion also indicates a norm, but does not contain a direct object. In that case the structure indicates (o) "the children" and the predicator consists of the obligation indicating auxiliary (H) "should" and the infinitive (I) "go to sleep."

Policies are an important topic in political science research. They are used to determine what the public thinks about different measures of the government (Sniderman et al. 1991; Holsti 1996). A policy assertion (a_p) has the structure (g(H+I)y), which means (the government should do something for y). Example 2.40 displays a policy assertion:

2.40 The government should not allow more immigrants.

In example 2.40 "the government" is (g), the predicator is "should not allow," which contains the obligation indicating word "should" and the infinitive "allow," while the direct object is " more immigrants."

Structure 3 can also be used with policies as example 2.41 illustrates:

2.41 The government has to resign.

In example 2.41 there is no direct object therefore structure 3 is applicable and the form is (g (H +I)). The only difference between norms and policies is that there is another subject. Norms are used for explaining the behavior of people (o) while policies indicate obligations for the government (g).

Rights, specifically requests for an answer dealing with civil right issues, are often queried in political science research (Sniderman et al. 1991). These perceived rights can be expressed using structure 1 where the subject is the matter at stake (e.g. abortion) and as subject complement (ri) an expression of permission such as "accepted," "allowed," or justified," which we will denoted by (xIri). An example of this type of concept is the following:

2.42 Abortion is permitted.

However, rights can also be expressed using structure 2. Then the assertion (a_{ri}) must contain a combination (oHRy), which means (someone has the right y). Example 2.43 illustrates our point:

2.43 Immigrants also have the right of social security.

The "immigrants" (o), "have the right of something" indicates the typical combination of the verb "have" and the direct object "the right of something"

(HR). The "of something," in this case "of social security" is a modifier within the direct object.

Action tendencies are often considered as the third component of an attitude (Ajzen and Fishbein 1980; Bradburn and Sudman 1988; Sudman and Bradburn 1983; Eagly and Chaiken 1993). An action tendency is what one intends to do in the future. The concept action tendency (a_t) can be represented in structure 2 or 3 where the predicator indicates a future deed of the respondent or (rFDy), which means r will do y. An example could be the following:

2.44 I want to go to the doctor.

Example 2.44 is a structure 3, where "I" is (r), "want to go" is the predicator (FD) indicating a future deed, and "to the doctor" is an adverbial. Structure 2 is also possible if the verb requires a direct object:

2.45 I will do my homework soon.

Example 2.45 uses structure 2 because there is a direct object (y) "my homework." It is followed by the adverbial "soon." In both cases (2.44 and 2.45) the most typical is the predicator which expresses a future deed of the respondent.

Expectations of future events (Graesser et al. 1994) are anticipations of events in which the respondent is not involved. The structure for an expectation (a_{ex}) is the same as in the case of action tendencies. The only difference is that the subject is not the respondent (r) but another grammatical subject (x). This means that the structure is xFD or xFDy. Examples are 2.46 and 2.47:

2.46 The storm will come.

2.47 The storm will destroy many houses.

So far all assertions have been clear about the concepts that they were supposed to represent. There are, however, also assertions used for which the meaning is not so clear. This is sometimes done intentionally but more often than not, by mistake. One of such types of assertions will be discussed below under the heading "evaluative beliefs."

Evaluative beliefs (a_{eb}) can be represented by many different types of assertions. Typically they have a *positive or negative connotation* (Oskamp 1991). Assertions presenting causal relationships are often used in this context. But because of their evaluative connotation, they indicate not only a causal relationship but also an evaluation of it. Therefore they are called "evaluative beliefs." These assertions are indicated by a_{eb}. In case of a causal relationship one structure is represented by (xCy_e). Example 2.48 illustrates this:

2.48 The budget reform has led to prosperity in the United States.

The "budget reform" is (x), "prosperity in the United States" is (y), and "has led to" is the causal predicator (C.) The noun "prosperity" referring to object (y) is clearly a word with a positive connotation (e), and therefore one can say that this statement also expresses an evaluation, besides the fact that it expresses a

relationship, which is typical to evaluative beliefs (y_e). A slightly different form of an evaluative belief is that the relationship predicator (C) contains a positive or negative connotation that is indicated by ($xC_e y$):

2.49 The war destroyed a lot of buildings.

In example 2.49 the subject (x) is "the war" which "destroyed" (C_e) "a lot of buildings" (y).

Behavioral assertions, which will be discussed in more detail in the paragraph on objective variables, can also become evaluative beliefs. Example 2.50 illustrates this:

2.50 The Netherlands prospered in the 17th century.

In this example the predicator "prospered" expresses a past deed with a positive connotation (D_e), which makes it an evaluative belief with the form ($xD_e y$).

These previous examples demonstrate that structures that do not contain explicitly evaluative terms can nevertheless indicate evaluative beliefs. In such a case, the assertion has to contain words with an evaluative connotation such as: to prosper, prosperity, succeed, success, flourish, fail, failure, miss, loss, destroy, spoil, kill.

Assertions indicating the concept "evaluative belief" can thus have the structure of several different assertions. Here we have mentioned only causal relations and behavior. What makes these assertions indicate an evaluative belief is the evaluative connotation of some words. Without this evaluative connotation the assertions cannot be seen as indicating "evaluative beliefs." Assertions, representing evaluative beliefs, have sometimes been used purposely by researchers to avoid socially desirable answers.

With this we conclude our introduction to the concepts-by-intuition that fall under the subjective variables category. These assertions are based on information that can be obtained only from respondents, whose views cannot be verified because they are personal views that represent subjective variables.

2.4.2 Objective variables

By *objective variables* we mean variables for which in principle information can also be obtained from a source other than the respondent. One could think of administrations of towns, hospitals, schools, and so on. Commonly these variables concern factual information such as behavior, events, time, place, quantities, procedures, demographic variables, and knowledge.

Behavior concerns present and past actions or activities of the respondent him/herself (Sudman and Bradburn 1983; Smith 1987). Structures 2 and 3 with an activity indicating predicator (D) can be used to specify the behavioral assertion (a_b). The typical form for structure 2 is (rDy), which means that the subject or respondent does or did y or with structure 3 it is (rD). It will be clear that the structure of this assertion is the same as the structure for an action tendency.

However, its content differs fundamentally from the latter. Action tendencies deal with subjective matters (likely future behavior) while behavior is factual and in principle controllable. Examples 2.51 and 2.52 show this structure:

2.51 I am studying English.
2.52 I was cleaning.

In example 2.51 "I" stands for (r), "am studying" is the action indicating predicator (D), and "English" is the direct object (y). In example 2.52 the subject "I" is again the respondent, while the action that indicates the predicator is "was cleaning." In this case there is no direct object. Therefore it is an example of structure 3, while example 2.51 employs structure 2.

The facts mentioned in these assertions can in principle be checked by observation as opposed to subjective variables such as, for example, a behavioral intention ("a person is planning to go to the hospital").

An *Event* represents another example of an objective variable. It pertains to other people's actions that are presently ongoing or had occurred in the past. The structure of this assertion (a_{ev}) is the same as the previous one except that the subject is not the respondent and therefore it is (xDy) or (xD). Examples of assertions characteristic to this concept are 2.53 through 2.55:

2.53 My brother is studying.
2.54 My mother had washed the clothes.
2.55 The shopping center has been burglarized.

In example 2.53 (x) is "my brother," "is studying" stands for the action predicator (D), and there is no direct object that makes it an example of structure 3. Example 2.54 belongs to structure 2. It has "my mother" as (x), the action predicator (D) is "had washed," and (y) is "the clothes." Example 2.55 belongs again to structure 3 with an adverbial as extension: (x) is "the shopping center," and "has been burglarized" represents the action predicator (D).

Demographic variables are used in nearly all surveys and are mentioned in all attempted classifications of data (Oppenheim 1966; Sudman and Bradburn 1983; Converse and Schuman 1984; Smith 1987; Bradburn and Sudman 1988). We represent demographic variables by the assertion (a_d). Structure 1 should be used for demographics (xId). The subject (x) is frequently the respondent or another person in his/her environment, but it differs from a judgment by the fact that the subject complement is limited to certain factual topics such as the respondent's gender, age, or occupation, summarized by (d). Examples 2.56 and 2.57 illustrate these assertions:

2.56 I am 27 years old.
2.57 I am married.

It will be clear that the structure of these assertions is the same as the one of an evaluation or a judgment. The only difference is the type of subject complement specified.

There are also assertions which relate to *knowledge* (a_k). They could ask, for example, who the 35th president of the United States was or which Russian leader had sent nuclear missiles to Cuba. The assertion to answer the first request would be structure 1, and the second would be structure 2. Examples 2.58 and 2.59 are examples of this type:

2.58 *Kennedy was the 35th president of the United States.*

2.59 *The Russian leader Khrushev had sent nuclear missiles to Cuba.*

The structure of these assertions requires historical or political knowledge of the respondent. These knowledge assertions can have any structure for objective variables. Our first example reads as follows: "Kennedy" is (x), "was" stands for the link verb predicator (I), and "the 35th president of the United States" is the subject complement (sc). Therefore the structure can be modeled as a_k=(xIsc).

The second example has the structure of an event: (x) is "the Russian leader Khrushev," the action predicator (D) is "had sent" and (y) is "nuclear missiles" while "to Cuba" is an adverbial.

Often information is requested in surveys about *time and place* of behavior or events. In an assertion this information is presented by adverbials indicating time/place-specific components. Examples 2.60 and 2.61 illustrate this:

2.60 *I worked yesterday.*

2.61 *I stayed in a hospital in Chicago.*

Thus, the focus shifts in these two examples from the act, to the specification of the time (2.60) or the place (2.61).

The first assertion is a time assertion a_{ti}=(rDti). It reads as follows: "I" is (r), "worked" is the behavioral connector (D), and "yesterday" is the time adverbial. The second example is a place assertion a_{pl}=(rDpl), where "I" is (r), (D) is "stayed," "in a hospital in Chicago" constitutes two place adverbials, indicated in the structure of the assertion by (pl). The reader may note that it is structure 3 that applies to time and place assertions.

Quantities can also be specified by structure 2. The assertion that can be formulated for quantities has the form (a_{qu}=rDqu). Example 2.62 illustrates this:

2.62 *I bought 2 packs of coffee.*

In example 2.62 "I" stands for (r), "bought" is (D), and "2 packs of coffee" is (y) the direct object. "2 packs" indicates the quantitative information (qu) and the modifier "of coffee" specifies the substance.

Assertions concerning *procedures* can be formulated similarly using structure 3 as (a_{pro}=(xDy, pro). An example is 2.63:

2.63 *I go to my work by public transport.*

"I" is (x), "go to" is (D), "my work" is a direct object (y), and "by public transport" is an adverbial that indicates the procedure (pro).

2.4.3 In summary

In this review most concepts-by-intuition used in the survey literature have been described. In these sections we have tried to make the structure of these assertions explicit. Table 2.1 summarizes them.

Table 2.1: The basic structures of simple assertions

Concepts		Structure 1 xIsc	Structure 2 xPy	Structure 3 xP
Subjective variables				
Evaluation	a_e	xIe	–	–
Importance	a_i	xIi	–	–
Values	a_i	vIi	–	–
Feelings	a_f	xIf	xFy or xPf	–
Cognitive judgment	a_j	xIc	–	–
Causal relationship	a_c	xIca	xCy	–
Similarity relationship	a_s	xIs	xSy	–
Preference	a_{pr}	xIpr	xPR y(z...)	–
Norms	a_n	–	o(H+I)y	o(H+I)
Policies	a_p	–	g(H+I)y	g(H+I)
Rights	a_{ri}	xIri	xHRy	–
Action tendencies	a_t	–	rFDy	rFD
Expectations of future events	a_{ex}	–	xFDy	xFD
Evaluative belief	a_{eb}	–	xP_ey or xPy_e	xP_e
Objective variables				
Behavior	a_b	–	rDy	rD
Events	a_{ev}	–	xDy	xD
Demographics	a_d	xId	–	–
Knowledge	a_k	xIsc	xPy	xP
Time	a_{ti}	–	–	xDti
Place	a_{pl}	–	–	xDpl
Quantities	a_{qu}	–	xDqu	–
Procedures	a_{pro}	–	–	xDy, pro

We are aware that these concepts can also be expressed in different ways, however the purpose of this exercise was *to suggest structures where there is no doubt that the generated assertions indicate the desired concepts-by-intuition*. Table 2.1 shows that some concepts can be presented in assertions with

different structures. Further research is required to determine whether there is a difference in the responses for different types of linguistic structures.

The table can also be used to detect which kind of concept has been used in assertions applied in practice. This is a more difficult task because there are different extensions of these simple sentences. Some of these extensions or variations in formulations will be discussed in the following sections. These extensions will make the coding of requests for answers more difficult than the production of proper assertions for the presented concepts.

2.5 ALTERNATIVE FORMULATIONS FOR THE SAME CONCEPT

Grammar provides a variety of different ways of expressing the same proposition; this is what some linguists call "allosentences," which are found in particular syntactic constructions and certain choices between related words (Lambrecht 1995: 5). We can select a form that is appropriate according to where we want to place the emphasis. Emphasis is placed mostly on new information in a sentence but it also might be desirable to place it on parts that are assumed to be known, or otherwise known as background information (Givon 1984: 251; Lambrecht 1995: 51). Some grammatical constructions that are syntactically different have the same content (Givon 1984; Huddlestone 1988; Lambrecht 1995), but they add emphasis to different parts of the sentence. The constructions studied in this section occur frequently in survey requests and are called *active/passive* and *existential*.[4] We begin with an example of the *active voice*:

2.64 *New laws have changed the position of black people.*

This assertion (2.64) means that the subject "new laws" is the so called "agent" and the direct object "the position of the black people" is the "patient" or "undergoer" of the change. If one reads this sentence the emphasis seems to be on "new laws." If we change this assertion into the passive voice, we obtain example 2.65:

2.65 *The position of black people was changed by new laws.*

In the passive voice (2.65) the emphasis is on the former patient "the position of black people" which becomes the grammatical subject while the agent becomes the adverbial "by new laws." To transform the passive assertion of example 2.65 into an existential construction, we need to put the word "there" at the beginning of the sentence and we obtain example 2.66:

[4] Linguists also mention the "cleft construction"; this means that a single sentence is divided in two parts (cleft), each with its own predicator while one is highlighted. To illustrate this we give an example: "It was new laws that changed the position of the black people;" or "it was the position of the black people that changed new laws." According to our experience, such constructions do not occur frequently in requests for answers, therefore we discuss them only briefly in Chapter 3.

2.66 *There has been a change in the position of black people due to new laws.*

In example 2.66 the subject "the position of black people" is substituted by "there," and the word "change" is highlighted.

The different formulations in examples 2.64 through 2.66 express the same concept, which is a relationship. But they emphasize different parts in the sentence. However, it is not clear how respondents react when they are confronted with these different forms. It can be that they pay attention only to the concept. On the other hand, they also can answer differently to the various grammatical forms. This is an issue that requires further empirical studies.

2.6 EXTENSIONS OF SIMPLE SENTENCES

Until now we have focused on the basic structure of assertions; however, in reality assertions have a lot of variation. They are expressed in sentences much longer than have been studied so far. Often indirect objects, modifiers, or adverbials are added to the simple sentences. In this section we will address this issue.

2.6.1 Adding indirect objects

An additional component that can be added to the simple sentences without changing the concept represented in the sentence is an indirect object. Examples 2.67 and 2.68, given previously, illustrate this:

2.67 *Honesty is very important to me.*

2.68 *He bought an apartment for his mother.*

These examples show that adding the indirect object component "to me" or "for his mother" does not change the concept the assertion refers to. The same holds true when modifiers are added to a sentence.

2.6.2 Adding modifiers

As we stated previously, a *modifier* gives a specification to a noun. The modifiers can be placed before and after the noun and be related to the subject and to the object. Previously some examples of this type were given as significant (2.14, 2.15, and 2.16). These examples demonstrated that normally modifiers are no complication for the assertions. Whether we say "Clinton" or "the popular Clinton" or "dirty clothes" instead of just "clothes" will rarely lead to serious interpretation problems for most respondents. However, the modifiers can be longer; for example, "the most famous president of the United States" can be written instead of just "president." If both the subject and the object have a modifier, the meaning of the sentence can become quite complicated. Therefore they should be used with moderation; they can be helpful but they can also lead to rather complex sentences.

2.6.3 Adding adverbials

In contrast to the previous additions to sentences discussed, adding an adverbial will *change the concept* most of the time. The reason is that adding such an adverbial implies providing specific information that becomes the focus of the attention (Givon 1990: 712). Structure 3 sentences often contain adverbial components or just an adverb. For example

2.69 He worked full time.

In this sentence the emphasis is not on whether he does or does not works, but, on the fact that he worked "full time" and implicitly not "part time." So this assertion expresses something about his work and is still an assertion expressing demographic information. But in the following example (2.70) a change in concept takes place:

2.70 He worked hard.

Adding the adverb "hard," the attention shifts from working or not working to "hard" or "lazy working," which expresses a cognitive judgment of one person about another. Take note that the concept has shifted from an objective variable to a subjective one. Examples 2.71 and 2.72 display concept shifts from objective to subjective variables, where the adverb has an evaluative (2.71), followed by an emotive (2.72) connotation:

2.71 He worked very well.
2.72 He worked with pleasure.

These sentences express an evaluative belief (2.71) and a feeling (2.72).

In section 2.4.2 we gave other examples of assertions for which the concept of intuition changed by adding adverbials with respect to time, place, quantity, or procedure.

2.7 USE OF COMPLEX SENTENCES

So far we have discussed only simple sentences or clauses, with only one subject and predicator. In contrast complex sentences consist of more subjects and predicators, because of additional clauses. Examples 2.73a–2.73d illustrate assertions with complex clauses (where subj.=subject and pred=predicator)

2.73a	*Immigrants*	*who come from Turkey*	*are generally friendly.*
	Subj. 1	Subj.2 Pred.2	Pred.1
2.73b	*Abortion is*	*permitted if a*	*woman is raped.*
	Subj.1	Pred.1	Subj.2 Pred.2
2.73c	*While driving home*	*he had*	*an accident.*
	Pred. 1	Subj.2	Pred.2
2.73d	*The Social Democrats*	*performed better than*	*the Conservatives.*
	Subj.1	Pred.1	Subj.2

Examples 2.73a and b display two subjects and two predicators, as the definition requires. The reader may note that example 2.73a displays a complex clause where the second clause "who came from Turkey," is embedded or nested in the first one. In the other examples the second clauses follow the first clause (2.73b–273d). There are thus two ways of joining sentences: linearly or embedded.

In example 2.73c the first subject is missing but implied, since it is the same as in the main clause "he." Example 2.73d omits the second predicator, and it seems to be implied since it has the same meaning as the first. The sentence would read correctly with "than the Conservatives *did/performed*."

Complex sentences can be built from coordinate clauses by linking them with coordinating conjunctions such as "and," "but," or, "neither," in which case they are considered the "same" level and called *main clauses*. Coordinate clauses can become rather problematic in survey research, as we will discuss in the following chapter, but from a linguistic perspective this type of complex sentence is clear and therefore we will concentrate on subordinate clauses in the next sections.

Examples 2.73a–2.73d expressed complex clauses consisting of a main clause and a subordinate clause. If the *subclauses* that are linked to the rest of the sentence by subordinating conjunctions ("who" 2.73a; "if" 2.73b; "when" 2.73c; "than" 2.73d) are omitted, then the remaining part is the main clause: "Immigrants are generally friendly" (2.73a), "Abortion is permitted" (2.73b), "He had an accident" (2.73c) or "The Social Democrats performed better in the elections" (2.73d).

At the beginning of this chapter we discussed the grammatical elements of simple clauses, which were the subject predicator, direct object, indirect object, object complement, and adverbial. All these parts of sentences *except the predicator* can also be expressed by a subordinate clause in complex sentences (Koning and Van der Voort 1996: 84–90).We will illustrate this by an example:

2.74a Problems in Turkey caused emigration to Europe.
2.74b Problems in Turkey caused that Turkish people emigrated to Europe.

Example 2.74a is a simple clause of structure 2 (subject + adverbial + predicator + direct object + adverbial). In example 2.74b the direct object + adverbial "emigration to Europe" are substituted by a subordinate clause "that Turkish people emigrated to Europe." It is thus characteristic of complex sentences that a component of a simple sentence is substituted by a subclause.

Having provided the necessary linguistic background to understand complex assertions, we will study them in more detail in the next sections.

2.7.1 Complex sentences with no shift in concept

The simple expression "emigration to Europe" (2.74a) has been substituted by the more elaborate subclause "that Turkish people emigrated to Europe" (2.74b). This example illustrates that the meaning of the two assertions is

similar but that the second formulation (2.74b) is much longer than the first. The subject (x) of assertion 2.74b is "problems in Turkey," which is followed by the causal predicator (C) "caused" and where the (y) is mentioned consisting of another assertion [a behavioral one (a_b)] which reads as follows: "Turkish people (x) emigrated (D) to Europe (y)." This interpretation of the assertion can be verified by asking: "what did the problems in Turkey cause?" Example 2.74 illustrates that the object in the previous assertion is substituted by another one. This complex assertion can be written more formally as (xRa_b). In this case both assertions, the simple one and the complex one, represent the same concept (a relationship), but the second assertion (2.74 b) is much more complex than the first (2.74a). Whether complexity of assertions makes a difference for the respondent is still an empirical question.

2.7.2 Complex sentences with a shift in concept

Substitutions of the sentence components y or x that represent different concepts can be employed for nearly all assertions discussed previously. Above we gave an example where the complex and the simple assertion represented the same concept (2.74a,b). There are, however cases where the two concepts present in the complex assertion are different. Below we provide several examples. A common example is the judgment of a relation. The relational assertion used (2.75) is one we have seen before:

2.75 Problems in Turkey caused emigration to Europe.

A judgment of this relation a_r is formulated in examples 2.76a and 2.76b:

2.76a That problems in Turkey caused emigration to Europe is quite certain.

2.76b It is quite certain that problems in Turkey caused emigration to Europe.

The equivalent meaning of the two linguistic variants of example 2.76 consists of the main sentence "(it) is quite certain" and the subordinate clause "that problems in Turkey caused emigration to Europe." However, the structure of these assertions (2.76a,b) is not (xIc) but (a_rIc). Therefore the assertion (a_r) "problems in Turkey caused emigration to Europe" takes the place of the subject x, the predicator is "is" and the subject complement is "quite certain." By asking oneself "what is quite certain?" (2.76b) we can conclude that the subject "it" can be substituted by "that problems in Turkey caused emigration to Europe." The phrasing of example 2.76a is a clearer example of this type of assertion, but 2.76b can be classified in the same category. Krosnick and Abelson (1991) discuss the use of such complex assertions, in particular the certainty about an opinion as a measure of *opinion strength*.

Evaluations can also be formulated with respect to assertions. Example 2.77 illustrates this point:

2.77 It is bad that the problems in Turkey caused emigration to Europe.

In 2.77 the structure is (a_rIe) and therefore this is an evaluation of an assertion.

In the same way, importance judgments can be formulated (2.78):

2.78 It is important to me that the Conservative Party continues to be strong.

While "that the Conservative Party continues to be strong" is an assertion on its own (a_e), in this statement an assertion concerning importance is formulated (a_eIi). Krosnick and Abelson (1991) discuss the requests using this type of complex assertion also as measures of "opinion strength."

Feelings can be formulated in the same way. Example 2.79 begins with the judgment (a_j):

2.79 Most immigrants are hard-working.

For this assertion (2.79) we can formulate an assertion for a feeling (2.80):

2.80 I am glad that most immigrants are hard-working.

In Example 2.80 the subject complement "glad" is extended by the subclause "that most immigrants are hard-working," which functions as an adverbial within the subject complement and could be paraphrased by "about the hard-working immigrants". The structure of 2.80 is (sIf a_j).

As a last example we show how a right is formulated on the basis of an evaluative belief in order to demonstrate the general approach. The evaluative belief a_{eb}=(xD_ey) is illustrated by example 2.81:

2.81 Immigrants exploit our social security system.

The assertion of a right (a_{eb} IR y) can then be formulated in example 2.82:

2.82 It is unacceptable that immigrants exploit our social security system.

These examples showed how this approach is used in general. Please keep in mind the complexity that can result. It is especially true when subject x and subject complement y are both substituted by assertions. Therefore, we do not recommend them for survey research, even though there is evidence that they are quite common in research practice. We did not include complex assertions in Table 2.1; however, the reader should be aware of that any x and y mentioned in Table 2.1 can be replaced by a complete assertion. We did not include this option in the table because the main clause will still indicate the same concept whatever the concept in the subclause may be.

2.7.3 Adding conditions to complex sentences

Another commonly used extension of an assertion is the *use of conditionals*. They express the circumstances under which something stated in the main clause can occur. They can express real or unreal things (Yule 1998: 123–152).

In survey requests both types of conditionals are used. Examples 2.83 and 2.84 show assertions with a real conditional:

2.83 Abortion is permitted if a woman is raped.

2.84 If immigrants work harder, they will be as well off as our people.

Example 2.83 clearly expresses a woman's right to abortion if she has been raped. Formally, it can be summarized as (xHRy |con) where "|con," indicates the condition. Example 2.84 indicates a future event depending on the prior occurrence of the "if" clause: ((xFDy) |con).

Also, sometimes unreal events are expressed in complex sentences. This is shown by examples 2.85 and 2.86:

2.85 If immigrants worked harder, they could be as well off as our people.

or

2.86 If immigrants had worked harder, they could have been as well off as our people.

Clearly, the evaluative state ("they could be as well off") in example 2.85 is unlikely because the "if" clause, describing the willingness of the immigrants to work harder, is in the past tense. In example 2.86 the evaluative state in the main clause ("they could have been as well off as our people") is impossible only because the "if" clause expressed in the past perfect implies that the condition was not fulfilled.

It is difficult to understand what concept is represented by these assertions (2.85 and 2.86). Our best guess is that they represent two concepts: a relationship suggesting that hard-working immigrants will be as well off as our people and the cognition that immigrants did not work hard, suggesting it is their own fault that they are in a worse situation. If researchers have difficulty in understanding what is being asserted by such assertions, it is very likely that the respondents will also be confused, which can lead to rather low reliability and validity scores. Nevertheless, assertions like this are not uncommon in survey research, as demonstrated in Table 1.1, item 3 (Chapter 1).

2.8 Summary and Conclusions

This chapter has discussed three basic assertion structures that can be used to represent most concepts-by-intuition from the social sciences. We also have indicated how the most commonly applied concepts-by-intuition in survey research can be expressed with certainty in assertions specifying these concepts. These rules are summarized in Table 2.1. The knowledge summarized in Table 2.1 can be used in two ways.

The table can be used to specify an assertion for a certain type of concept according to the criteria specified in Table 2.1. For example, if we want to specify an evaluation about immigrants, we know that the structure of the sentence should be (xIe). Therefore, we can formulate a statement such as

"immigrants are good people." If we want a feeling (xIf), we can write "immigrants are in general friendly." If we want a cognitive judgment (xIc), the statement is: "immigrants are in general hard-working." If we want to formulate a cognition concerning the reasons why immigrants come here, the structure is (xRy), and a possible assertion would be "Problems in their own country cause emigration to Europe." In the same way assertions can be formulated for any other concept.

Table 2.1 can also be used to detect which kind of concept has been used in assertions applied in practice. The elementary structures of the assertions refer in a simple way to the concepts mentioned. However, we have to say that the assertions can be made rather lengthy by use of complex sentences, subordinate clauses, time and place statements, and conditions. The use of such complicating possibilities can cause that the meaning of the assertions becomes much less intuitively clear than in the simple assertions. It is an interesting topic of further research to study what kinds of complications are possible without shifting the meaning of the request or assertion for the respondent.

Exercises

1. Formulate assertions concerning the Al Qaida network in terms of
   a. A cognition
   b. An evaluation
   c. A feeling
   d. A relationship
   e. A norm
   f. A policy
   g. A behavioral intention
   h. A future event
   j. A behavior
2. Guttman (1981, 1986) suggested the use of facets designs to create measurement instruments. The facet design presented in the table 2.2 below has been developed in discussions between the members of the International Research Group on Methodological and Comparative Survey Research (Saris 1996). The purpose of this table is to show that one can systematically formulate statements for different concepts-by-intuition mentioned above the columns. This can be done for the different aspects of life indicated in the rows of the table.
   a. Can you specify an assertion for each cell of the table using our procedure?
   b. Can the items in the rows be used to measure a concept-by-postulation?
   c. Can the items in the columns be used to measure a concept by postulation?

Table 2.2: Facet design for ethnocentrism

Aspects of life	Judgment	Evaluative belief	Evaluation out/ingroup	Norms	Policies
Way of life					
Religion					
Economic					
Political					
Personal					

3. Measurement instruments are not always carefully developed in research. Examples are the measurement instruments presented in Table 2.3.
   a. Indicate where the different items of Table 2.3 fit in the facet design presented in exercise 2.
   b. Can these items be used to form a concept-by-postulation?

Table 2.3: Operationalization of subtle and symbolic racism

Items	
1	Os living here should not push themselves where they are not wanted.
2	Many other groups have come here and overcame prejudice and worked their way up. Os should do the same without demanding special favors.
3	It is just a matter of some people not trying hard enough. If Os would only try harder, they could be as well off as our people.
4	Os living here teach their children values and skills different from those required to be successful here.
5	How often have you felt sympathy for Os?
6	How often have you felt admiration for Os?
7	How different or similar do you think Os living here are to other people like you?
7a	In the values that they teach their children
7b	In the religious beliefs and practices
7c	In their sexual values or practices
7d	In the language that they speak
8	Has there been much real change in the position of Os in the past few years?
9	Generations of slavery and discrimination have created conditions that make it difficult for Os to work their way out of the lower class.
10	Over the past few years Os have received less than they deserve.
11	Do Os get much more attention from the government than they deserve?
12	Government officials usually pay less attention to a request or complaint from an O person than from our people.

O stands for member(s) of the outgroup, which includes any minority group member(s).

4. For the ESS pilot study a proposal was made by Shalom Schwartz to measure basic human values. The suggestion for one of the items was as follows:

Here we briefly describe some people. Please read each description and think about how much each person is or is not like you. Put an X in the box to the right that shows how much the person in the description is like you.

HOW MUCH LIKE YOU IS THIS PERSON?

	Very much	*much*	*some what*	*a little*	*very little*	*not at all*
Thinking up new ideas and being creative is important to her. She likes to do things her own original way.						

   a. Specify the concepts that are present in this survey item.
   b. Check if these assertions represent the concepts they are supposed to represent.
   c. If needed, try to improve the survey item.
5. Check over your own questionnaire from Chapter 1 exercises to see
   a. What the concepts-by-intuition behind your requests are
   b. If your assertions indeed reflect these concepts-by-intuition