# Perception prefixes in Nez Percé[1]

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The present essay briefly investigates the semantic and structural behaviour of eight sensory perception prefixes in the Sahaptian language Nez Percé. Various semantic relations which a perception prefix may enter with a verb stem are focussed, based on a semantic comparison with similar structures in syntax. In the most frequent construction types, the direction of perception is specified or the perception is an abstract cause of some state or, more rarely, some event. The relative ordering of prefix and stem usually iconically reflects the temporal sequence of events. Most complexes of prefix and stem show semantic 'same-subject' linking.

## 1    Introduction

Nez Percé is a Plateau-Penutian language of the Sahaptian group. Two excellent grammatical descriptions are available, one focussing on phonology and morphology (Aoki 1970), and one more concerned with syntax and information structure (Rude 1985). A marvellous dictionary (Aoki 1994, henceforth NPD) offers a plethora of data to work with. Although Nez Percé is strongly polysynthetic in terms of the meanings it expresses in the verbal theme, polysynthesis in this language has not received much attention to date. The present essay presents a brief sketch of thematic verbal prefixes expressing sensual perception (henceforth PCPs).

The Nez Percé verbal theme contains six position classes, (a) the distributive position, (b) the causative position, (c) the thematic prefix position which can be filled by one, two, or rarely three of a set of approximately 170 thematic prefixes (Aoki 1970) – all PCPs belong to this set, – (d) the stem position which can be filled either by a verb stem or by a locative-directional morpheme, (e) the extension position with the meaningless morpheme *k* required by certain thematic prefixes and by a few stems, and (f) the thematic suffix position which can be filled by one or two morphemes from a heterogenous set of valency-increasing, directional, intentional, motional, and adverbial suffixes.

Nez Percé verbs indicate person and number of two participants. Person is indicated by a prefix. Number is indicated by two prefixes, as well as in the inflectional suffix complex. First person subject acting on second person object

(1• 2), and second person subject acting on first person object (2• 1) are indicated by a zero prefix. Third person subject acting on first or second person object (3• 1 or 3• 2) is indicated by the prefix *hi*. First or second person subject acting on third person object (1• 3 or 2• 3) is indicated by the prefix *?e*. Third person subject acting on third person object (3• 3) is indicated by the prefix *pee*. Monovalent verbs indicate first or second person subject by zero, and third person subject by *hi*.

Valency indicators are highly relevant heuristic tools in studying Nez Percé polysynthesis.[2] One such indicator is personal agreement. But because the agreement prefixes *ø* and *hi* occur with monovalent as well as with divalent verbs, personal agreement alone often does not suffice to determine the valency of a given verb. The prefixes *?e* and *pee* are major indicator of surface valency, since they occur only with surface divalent and trivalent verbs.

(1)  *?e?wiise*[3]
     ?e-?ewii-se
     1• 3-shoot-INFL
     'I shoot it.' (NPD:997)

(2)  *pé?wise*
     pee-?ewii-se
     3• 3-shoot-INFL
     'He shoots it.' (NPD:997)

The plural object prefix *nees* also occurs with surface divalent and trivalent verbs only. It never occurs in underlyingly divalent or trivalent verbs which have been antipassivized. If a third person subject and a third person plural object marked by *nees* cooccur, person agreement *pee* is replaced by *hi* preceding *nees* (Rude 1985:38). The sequence *hi-nees* therefore also indicates surface divalency or trivalency.

(3)  *néeshexne*
     ø-nees-heki-ne
     1• 2-PL_OB-see-INFL
     'I saw you all.' (Rude 1985:38)

(4)  *hinéesexne*          **but not**
     hi-nees-heki-ne       *pee-nees-heki-ne
     3• 3-PL_OB-see-INFL
     'He saw them.' (NPD:108)

Ergative case *nim* with unpossessed third person subjects and accusative case *ne* also indicates surface divalent or trivalent verbs. Each monovalent verb can have only one subject in nominative case. If a verb occurs with two semantically in-

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[2] Aoki (1994:xv) has good reasons for not classifying verb stems as inherently monovalent or divalent. In fact such a classification has been introduced in the present essay only in order not to lose the important information on the valency of individual examples. But it is fairly reasonable to assume that verb stems are not inherently monovalent or divalent in Nez Percé but have this specification added by agreement inflection only.

[3] All symbols have their usual value but /c/ is the affricate [ts], /x/ is a voiceless palatal fricative, /X/ is a voiceless uvular fricative, and /e/ is an unrounded front mid vowel [æ]. 1 'first person', 2 'second person', 3 'third person', ADJVZR 'adjec-tivizer', BEN 'beneficative', CAUS 'causative', COLL 'collective', DISTR 'distribu-tive', EXT 'extension', LOC 'locative case', NLZR 'nominalizer', PL 'plural', PL_SU 'plural subject', PL_OB 'plural object', REFL 'reflexive'. The inflectional suffix complex is uniformly glossed as 'INFL'; for details see Rude (1985). Personal agreement has consistently been translated as first person.

dependent nominative arguments, one of them translated as a subject and the other as an object, and the respective clause is an antipassive of an underlyingly divalent or trivalent verb. Antipassive is derived not by adding an antipassive marker but by inflecting the verb with monovalent person agreement markers, and marking both subject and object chômeur with nominative case. Finally, if a verb is inflected as a monovalent verb but is translated as having a subject and a direct object possessed by the subject, the clause in question is also an antipassive of an underlyingly divalent or trivalent verb.

(5)  *?awáwyaca*  (6)  *páawawya?nya*  (7)  *wáwyaca*
     ?e-wawya-ce        pee-wawya-eey'-ye        ø-wawya-ce
     1• 3-hit-INFL       3• 3-hit-BEN-INFL        1-hit-INFL
     I₁ hit him₂.       He₁ hit his₂.           I₁ hit mine₁. (all: NPD:835)

Example (5) is an underlyingly divalent verb with divalent agreement. In (6) the same verb has a possessed direct object marked by beneficative advancement, and personal agreement referencing the subject and the possessor of the demoted direct object. In (7) there is an antipassive of the same verb with the subject possessing the demoted object. Undemoted direct objects cannot be possessed by clause-mate subjects in Nez Percé (Rude 1985:161ff,205ff).

After establishing the valency of individual polysynthetic verbs by the language specific heuristic tools outlined above, the discussion will proceed to description of their semantics. Consider the example below with the thematic prefix *?ipée* 'stand', the verb *t'úxs* 'to break open, cut open, puncture', and the thematic suffix *aatk* 'as the OBJECT passes by the SUBJECT'.

(8)  *pá?pat'oxskatka*
     pée-?ipee-t'uxs-k-aatk-e
     3• 3-stand-cut.open-EXT-move.by-INFL
     It (e.g. a standing piece of flint) split him as he passed by. (NPD:819)

In (8) *?ipée* specifies the position of the subject, whereas *aat* expresses the motion of the object of the verb *t'úxs*. To describe the basic semantics of this and similar examples the innocent assumption will be made that non-stem morphemes in polysynthesis have potential arguments. That is, they do not have argument slots as stems do, but they have the potential to introduce an argument in a complex verb, or link an argument to some argument of the stem they attach to. Thus *?ipée* has a potential figure argument, and *aat* has a potential figure argument too. This does not mean, of course, that such prefixes and suffixes have a valency in the same way as verb stems or complex polysynthetic verbs have a valency. It simply means that their semantic behaviour inside a polysynthetic form is comfortably described in terms of arguments and linking of arguments. A structure such as that below can be posited for the example above.

(8a)  *?ipee* ( figure₁ )  &  *t'uxs* ( subject₁  object₂ )  &  *aatk* ( figure₂ )
      1 = subject, 2 = object

The potential figure of *?ipee* is linked to the subject of the verb *t'uxs* and the potential figure of *aatk* is linked to the object of *t'uxs*, since it is the agent of *t'uxs* which stands but the object of *t'uxs* which moves by. The semantic structures also express which participants are realized as which arguments of the complex verb. On the basis of these structures, linking patterns can be defined. Then *?ipee* and *t'uxs* would have same subject linking, whereas *t'uxs* and *aatk* would have different subject linking for instance.[4]

## 2    Inventory of perception prefixes

There are eight thematic prefixes in Nez Percé which regularly express perception by seeing, hearing, tasting or smelling.

| Perception prefixes (PCPs) | | Possible cognate morphemes | |
|---|---|---|---|
| *sile(e)w* | see, look, watch | — | |
| *sil(im)* | see, look, watch, eye | *silu* N | eye |
| *site(e)* | look, face | *mastay* N (?) | face, cheek |
| *nim(ee)* | see, look, watch | — | |
| *se* | see, look, watch | — | |
| *mis* | hear, listen | *mic'ii* V | hear, understand, obey |
| *himke(e)* | taste | *him'* N | mouth, mouth of river, cave |
| *nuuxc* | smell | *nuuxsi* V | smell |

Figure 1: Inventory of perception prefixes

The prefix *sileew* or *silew* translates as 'look, appear' as well as 'see, look' and is the most important and most frequent PCP. This prefix is possibly related to *sil* or *silim*. The prefix *sil(im)* usually means 'see, look' and may share a common origin with the noun *silu* 'eye'. The prefix *site* 'face' usually translates as 'look'. This prefix may be related to the noun *mástay* 'face, cheek'. The prefix *nim* 'see, with the eyes' occurs as *nimee* 'see, with the eyes' with the bound verb *kuni* 'to firsee, anticipate, come' (Aoki 1994:253). The prefix *mis* is listed by Aoki (1994:447) as 'with the ear, by hearing'. This prefix may be related to the verb *mic'ii* 'to hear, understand, obey, listen, mind, serve'. The prefix *himke* may be analysable into the prefixes *him* 'mouth' and *kee* 'with teeth, bite, eat, food' as suggested by Aoki (1994:203), and, in fact, the combination *himkee* 'taste' also occurs. The prefix *him* may be historically related to the noun *him'* 'mouth, mouth of a river, cave' (Aoki 1994:148). The prefix *nuuxc* (or *nuuxs*) is glossed as 'by smelling, in smelling' by Aoki (1994:497), and may be related to the verb *nuuxsi* 'to smell' or the noun *nuusnu* 'nose, beak, bill, muzzle'.

## 3 Direction of perception

The present section treats PCPs with motion stems or locative-directional suffixes to the effect of directed perception as in *he looks out of the window across the street* or *he just looked in for a moment.* Hundreds of polysynthetic complex verbs can be formed by combining a prefix of locomotion or motion with a verb of motion or direction or with a locative-directional suffix. The examples below illustrate the motion verb *weeyik* 'move across' in its monovalent and divalent uses.

(9) *hiwéeyikse*
hi-weeyik-s e
3-cross-INFL
He is crossing. (NPD:871)

(10) *?ewéeyikse*
?e-weeyik-s e
1• 3-cross-INFL
I am crossing it. (NPD:871)

The next example illustrates *weeyik* with the locomotion prefix *wuule* 'ride' and with the PCP *sitee* 'look'. With a PCP the motion meaning of *weeyik* and similar stems is lost, and only the direction of looking is metaphorically specified.

(11) *hiwúuleweyikse*
hi-wuule-weeyik-se
3-ride-cross-INFL
He is riding across. (NPD:875)

(12) *sitúuyikse*
ø-**sitee**-weeyik-se
1-**look**-cross-INFL
I look across. (NPD:872)

There is a set of locative-directional suffixes, which are always preceded by either the causative prefixes *sepee* or *seep* or by a thematic prefix. The most important polysynthetic construction types with locative-directional suffixes are illustrated below.

(13) *?ipsqiléhnece*
ø-?ipsqi-lehne-ce
1-walk-downhill-INFL
I am walking downhill. (NPD:328)

(14) *páatoolahnanqana*
pee-tuule-lehne-qene
3• 3-throw-down-INFL
He threw it or them down. (NPD:326)

(15) *hi?wiléhnece*
hi-?iwil-lehne-ce
3-urinate-down-INFL
He is urinating from a high place. (NPD:328)

(16) *tu?péhnece*
ø-tu?p-lehne-ce
1-leg-down-INFL
I am hanging my legs down. (NPD:327)

In example (13) locomotion or motion is directed and it is the moving figure whose direction is specified by *lehne.* In (14) motion is caused or induced and it is only the patient but not the agent which is directed and moves. In (15) an action is directed and only an instrument, or a result of an action as in urinating down somewhere moves. Finally in (16) a patient, usually a body part, is moved in a direction or located somewhere.

Locative-directional suffixes can relatively freely combine with the PCP *sitee* No motion is involved and direction is understood metaphorically.

(17) *siteléhtetu*
ø-**site**-leht-tetu
1-**look**-out-INFL
I used to look out. (NPD:332)

(18) *siteléhyeku?*
ø-**site**-lehyek-u?
1-**look**-upstream-INFL
I will look or face upstream. (NPD:339)

(19) *sitáalkalayksa*
ø-**sitee**-lakalay-k-se
1-**look**-hillside-EXT-INFL
I am looking over, I am surveying the side of a hill. (NPD:304)

Polysynthetic verbs of this type are usually monovalent, and only few are divalent such as that below. Divalency is also indicated by accusative case on the object *meXséemne*

(20) *?estéetp'ese*          *meXséemne*
?e-**sitee**-letp'ee-se      meeXsem-ne
1• 3-**look**-against-INFL    mountain-ACC
I am looking at the side of a mountain. (NPD:348)

Being mostly monovalent, these verbs need a valency increasing suffix to become divalent. The most appropriate suffix for this purpose is the directional suffix *uu* 'toward'. This usually increases valency by one, or forms directional applicatives by promoting a directional adjunct to direct object status. Combined with complex verbs containing *sitee* and a locative-directional suffix, *uu* adds a valency slot for the otherwise implied reference object of the locational or directional relation. If a noun phrase is added to specify the reference object, this takes accusative case.

(21) *hinessitelehneniúuye*
hi-nees-**sitee**-lehne-uu-ye
3• 1-PL_om-**look**-down-toward-INFL
He looked down in our direction.
(NPD:324)

(22) *pesteylekiúuye*
pee-**sitee**-leyleek-uu-ye
3• 3-**look**-in-toward-INFL
He looked in (through sthg)
toward him. (NPD:354)

Physical motion is not implied, and the suffix only specifies the metaphorical direction of looking. Examples of this type never receive an interpretation parallel to a syntactic complementation structure, be they monovalent or divalent. That is, *pesteylekiúuye* cannot mean 'he saw him move in' etc.

## 4       Manner of perception

The present section discusses PCPs with stems indicating manner of perception, as in English examples like *he watched me intently*, or *he carefully*

*looked at it,* or *he concentrates on watching it,* or *he pays attention to what he hears.* Hundreds of Nez Percé polysynthetic verbs express manner or instrument of action. The examples below with *hiyaala* 'to catch, round up, take away, remove' and *nikee* 'pull' illustrate this pattern.

(23) *?apaayáalano?*
?e-pee-hiyaala-u?
1• 3-PL$_{SU}$-try.to.catch-INFL
We will try to catch him. (NPD:169)

(24) *hinkáahiyalana*
hi-nikee-hiyaala-n e
3-pull-take.away-INFL
He pulled (his eye) out. (NPD:169)

But with perception or sensing verbs there is only one such example. The verb *tewyek* 'feel, sense' may take a sentential complement or may combine with a thematic prefix specifying the particular sensory channel such as *tuk$^{w}$eep* 'with the hand', which is not a PCP but usually specifies an instrument. But *tewyek* may also combine with the PCP *himke* 'taste' resulting in a structure semantically parallel to (24) above.

(25) *péetewyeke*
pee-tewyek-y e
3• 3-feel-INFL
He felt it. (NPD:727)

(26) *hitkíuptewyekse*
hi-tuk$^{w}$eep-tewyek-se
3-with.hand-feel-INFL
He feels with his hand.
(NPD:728)

(27) **hímke***tewyekse*
ø-**himke**-tewyek-se
1-**taste**-feel-INFL
I taste. (NPD:328)

Example (27) shows that *himketewyek* must be monovalent since it takes the monovalent agreement prefix *ø* indicating first or second person subject.

(27a) *himke* ( perceiver$_1$ perceived$_2$ ) & *tewyek* ( subject$_1$ object$_2$ )    1 = subject

The potential perceiver argument of *himke* is linked to the subject of *tewyek* and the potential perceived argument of *himke* is linked to the object of *tewyek*. The latter is assumed to remain implicit in *himketewyek* since this is monovalent.

Nez Percé has a verb *qitti* 'be energetic, loud, hard, tight' of which the dictionary contains only examples where it is preceded by a thematic prefix. Similar examples are found with *tayi* 'to do in play, idly', which is probably related to the manner suffix *tay* 'halfheartedly, carelessly, just for fun, pretend'. Both *qitti* and *tayi* may combine with thematic prefixes.

(28) *nikéeqittise*
ø-nikee-qitti-se
1-pull-hard-INFL
I am pulling hard. (NPD:589)

(29) *tamqitáayca*
ø-teemqi-tayi-ce
1-throw-play-INFL
I am just throwing. (NPD:698)

These examples clearly demonstrate that it is a manner specification which is contributed by *qitti* and *tayi*. It probably is stems in this function from which manner suffixes may have grammaticalized. Given the general structure of Nez Percé polysynthesis this is by no means an unexpected fact of course.

The verb *qepisi* 'to exert strength, make an affort' which has a corresponding duplicated adjective *qepsqéps* 'strong, vigorous' as well as an adverb *qepís* 'strongly, loudly' can be further intensified by using an emphatic reflexive. To become divalent, it can take the directional applicative *uu*.

(30)  *qepsice*
      ø-qepisi-ce
      1-make.effort-INFL
      I am straining. I am making an effort. (NPD:578)

(31)  *?inéeqpisce*                     (32)  *peqpisnúuye*
      ?inee-qepisi-ce                         pee-qepisi-uu-ye
      1.REFL-make.effort-INFL                 3• 3-make.effort-toward-INFL
      I am doing my best. (NPD:578)           He strained against it. (NPD:578)

If the stem *qepisi* expresses manner of some action, the adverb *qepís* is usually employed. That is, *qepisi* differs from *qitti* above in that it does not take thematic prefixes usually. The only exception to this generalization is the prefix *silim* 'see, look, eye'.

(32)  **silim**qepsce
      ø-**silim**-qepisi-ce
      1-**look**-make.effort-INFL
      I focus my eyes intently on something. (NPD:578)

Here *qepisi* provides manner specification for *silim* and expresses an action of intensive looking. Only one example is provided in the dictionary which is monovalent, but the translation suggests that an implicit object is present and, thus, it must be assumed that *silimqepisi* in the above example is an antipassivized underlyingly divalent verb.

Semantically similar examples involve the bound verb stem *qiitwe* 'to pay attention, be attentive'. This occurs only in two forms, with *mis* 'hear' and with *sileew* 'look'.

(33)  *hines**mis**qiitwene*              (34)  *pee**mis**qiitwene*
      hi-nees-**mis**-qiitwe-ne                 pee-**mis**-qiitwe-ne
      3• 3-PL_OBJ-**hear**-pay.attention-INFL   3• 3-**hear**-pay.attention-INFL
      He listened to them. (NPD:590)            He listened to him. (NPD:590)

The presence of divalent agreement *hi-nees* and *pee* clearly shows that *misqiitwe* is divalent. Below are examples of *qiitwe* with *sileew*. Agreement clearly shows that *sileewqiitwe* is divalent.

(35)  *?e**sileew**qitwece*              (36)  *pee**sileew**qitwecix*
      ?e-**sileew**-qiitwe-ce                   pee-**sileew**-qiitwe-cix
      1• 3-**look**-pay.attention-INFL          3• 3-**look**-pay.attention-INFL
      I am watching it. (NPD:590)               They are watching him. (NPD:590)

There is a final set of examples which may lend themselves to an interpretation as containing a stem functioning as a manner or aktionsart indicator. These *talaqi* 'to stop'.

(37) **silim**talqsa  
ø-**silim**-talaqi-se  
1-**look**-stop-INFL  
I am staring at mine (NPD:675)

(38) *hitqa**slim**talqsa*  
hi-teqe-**silim**-talaqi-se  
3-briefly-**look**-stop-INFL  
He stared briefly. (NPD:675)

These examples must be antipassives of underlyingly divalent verbs as evident from *silimtalqsa* which is translated as an antipassive with the subject possessing the object chômeur. Good literal translations of the examples seem to be 'to remain in a state of looking at' or 'to stop in looking at'. That is *talaqi* has a somewhat metaphorical interpretation here and does certainly not mean 'to stop looking at' (terminative or egressive aktionsart) or 'to stop (doing something else) in order to look at' (purposive). Rather *talaqi* is used to bring out the intense and focussed nature of staring.

## 5  Perception as temporally preceding complement

The present section discusses PCPs functioning as semantic complements of stems, or parallel to complements in syntax such as in *I don't believe what I just saw* or *he just thinks about what he heard from me*. In all of these examples, the perception event necessarily temporally precedes the event expressed by the stem. One such example is based on *suqu?yee* 'to imitate, copy'.

(39) *suqu?yéese*  
ø-suqu?yee-se  
1-imitate-INFL  
I am copying. (NPD:663)

(40) *?esqu?yéese*  
?e-suqu?yee-se  
1•3-imitate-INFL  
I am copying him. (NPD:663)

This verb occurs with the prefix *?ileep* 'speak' in its basic meaning and with the same prefix in a somewhat marginal meaning 'act'.

(41) *?iléepsqú?yese*  
ø-?ileep-suqu?yee-se  
1-speak-imitate-INFL  
I am imitating mine. I am repeating another's words. (NPD:664)

(42) *pist*      *?iléepsqú?yese*  
pist-ø        ø-?ileep-suqu?yee-se  
father-NOM    1-speak-imitate-INFL  
I am imitating my father. (NPD:664)

(43)  *na?tóotap*      *?ew'léepsqu?yese*
　　　ne?-toot-ne      ?e-?ileep-suqu?yee-se
　　　1.POSS-father-ACC  1• 3-speak-imitate-INFL
　　　I am imitating my father. (NPD:664)

(44)  *?iléepsqu?yese*
　　　ø-?ileep-suqu?yee-se
　　　1-act-imitate-INFL
　　　I am imitating mine by action. (NPD:664)

Speaking, doing, or acting is not a simple patient here. Rather it must have
temporally preceded the act of imitating or copying for logical reasons, for the
imitator must have at least once perceived what he imitates before successful
imitation. This temporal relation is brought out best in the structures below.

(41a-43a)  *?ileep*( speaker$_2$ speech$_3$ )•  *suqu?yee*( subject$_1$ object$_3$ )    1 = sub, 2 = obj

(44a)  　　*?ileep*( agent$_2$ action$_3$ )•  *suqu?yee*( subject$_1$ object$_3$ )    1 = sub, 2 = obj

　　　The semantic analysis the example with *mis* 'hear' below is now
straightforward. This is semantically parallel to (41-44) above.

(45)  *misqu?yéese*
　　　ø-mis-suqu?yee-s e
　　　1-hear-imitate-INFL
　　　I talk like mine. I repeat what I hear. (NPD:663)

This example is inflected as a monovalent verb but the translation clearly indi-
cates that it is at least potentially divalent again. It also shows why an analysis of
*?ileep* as a manner or an instrument in the preceding examples is not desirable.
An interpretation of *misqu?yéese* as 'I imitate mine by hearing' is semantically
impossible since hearing is not an action and cannot be a manner or instrument
of another action. Furthermore, assuming two different analyses for (41-44) on
the one hand and (45) on the other hand would miss the important semantic
parallelism between the three examples. Thus the only semantic analysis that
remains for *misqu?yéese* is 'I imitate what I hear from mine'. What the three
examples share is that speaking, acting, and hearing all temporally precede
imitating and that at the same time speech, action, or sound is imitated parallel
to the simplex verb *suqu?yee*. Thus in the 'I talk like mine' sense the semantic
analysis is 'I hear mine and then imitate what I hear from mine' with the source
potential argument of *mis* realized as the new direct object of *misqu?yee* and the
verb being antipassvized.

(45a)  *mis* ( perceiver$_1$  perceived$_3$ source$_2$ )  •   *suqu?yee*( subject$_1$ object$_3$ )
　　　1 = subject, 2 = object

In the 'I repeat what I hear' sense the structure is identical with the single difference that the source potential argument of *mis* is not realized as the direct object of the complex verb *misqu?yee*. Recall that the original object of *suqu?yee* is already taken up by the potential perceived argument of *mis*.

(45b)  *mis* ( perceiver$_1$  perceived$_3$ )  •  *suqu?yee* ( subject$_1$  object$_3$ )   1 = subject

The only other difference between (45a) and (45b) on the one hand and (41a-44a) on the other hand is that the potential perceiver argument of *mis* is linked to the subject of *suqu?yee* since the perceiver and the imitator are identical in (45a, b) whereas the speaker or agent in (41a-44a) are not identical to the imitator.

Semantically similar examples involve the verb *neki* 'think, plan, deem', which can occur as a compound with nouns such as *lawtiwaa* 'fiend' or adjecti - ves such as *?ikuuy* 'true, honest', which are then interpreted in a way parallel – but not identical – to secondary predicates or complements in syntax above the word level.

(46)  *?aláwtiwaanaksa*                    (47)  *?ikíuynekse*
      ?e-lawtiwaa-neki-s e                       ø-?ikuuy-neki-se
      1•  3-friend-think-INFL                    1-true-think-INFL
      I consider him a friend. (NPD:474)         I think it is true. (NPD:475)

The first example shows that the resulting structures can be divalent. Note that no temporal precedence is involved between the mental state of thinking and the thought. They are temporally simultaneous because a thought does not exist independently of a thinker.

(46a)  *neki* ( subject$_1$  object=*lawtiwaa* ( argument$_2$ ) )   1 = subject, 2 = object
(47a)  *neki* ( subject$_1$  object=*?ikuuy* ( argument$_2$ ) )   1 = subject

The compound *?ikuuyneki* can be further affixed with *mis* 'hear' as below.

(48)  *?amc'kúuyneke*
      ?e-**mis**-?ikuuy-neki-e
      1•  3-**hear**-true-think-INFL
      I believe him. (NPD:474)

There is clear temporal precedence involved here since to consider something true one must have first heard it. But *mis* does not only indicate the perceptual channel by which information is received, it also indicates what is believed or considered true, that is, it indicates the thought argument of *?ikuuyneki*. So an accurate translation is 'I think what I hear from him is true'. The agreement prefix *?e* inidcates divalency.

(48a)  *mis* ( perceiver$_1$  perceived$_3$  source$_2$ )  •  *neki* ( subject$_1$  object=*?ikuuy* ( argument$_3$ ))
       1 = subject, 2 = object

Here the potential perceived argument of *mis* is linked to the argument of *?ikuuy*, that is, the perception is what is considered true. The potential perceiver argument of *mis* and the thinker or considerer argument of *?ikuuyneki* are identical. The original object of *?ikuuyneki* is taken up by the potential perceived argument of *mis* and the potential source argument of *mis* is realized as the new direct object of the complex verb *mic'ikuuyneki*.

The verb *mic'ikuuyneki* may serve as a base for further thematic affixation. Here the verb is causativized by the prefix *tee* 'speak, talk, sing'.

(49)  *téenekse*
    ø-tee-neki-se
    1-speak-think-INFL
    I make mine think by speaking. (NPD:474)

(50)  *petemc'ikuuyneksene*
    pee-tee-**mis**-?ikuuy-neki-sene
    3• 3-speak-**hear**-true-think INFL
    He persuaded him. (NPD:474)

By speaker's world knowledge, it must be assumed that the potential perceived argument of *mis* 'hear' is identical to the potential speech argument of *tee* in (50) to the effect that a more accurate translation would be 'he$_1$ made him$_2$ think by speaking that what he$_2$ heard from him$_1$ is true'.

(50a)  *tee* ( speaker$_1$  speech$_3$  adressee$_2$ )  •
      *mis* ( perceiver$_2$  perceived$_3$  source$_1$ )  •
      *neki* ( subject$_2$  object=*?ikuuy* ( argument$_3$ ) )    1 = subject, 2 = object

Another particularly interesting example of a non-mental-state verb with a perception abstract cause prefix contains *wiqii* 'to lose, take off, leave, throw away'. If the prefix *tala* 'belief', which occurs only with *wiqii*, is added the result means 'do not believe, doubt'.

(51)  *wiqiice*
    ø-wiqii-ce
    1-lose-INFL
    I lost (e.g. money).
    (NPD:890)

(52)  *?ewqiice*
    ?e-wiqii-ce
    1• 3-throw.away-INFL
    I throw it out. (NPD:890)

(53)  *?atalawiqica*
    ?e-tala-wiqii-ce   -INFL
    1• 3-belief-throw.away-
    I doubt it. (NPD:891)

As evident from the divalent agreement prefix *?e*, the verb *talawiqii* is divalent. In the semantic structure *tala* expresses a patient metaphorically thrown away. The potential believer argument of *tala* is linked to the subject of *wiqii* and the potential believed argument of *tala* is realized as the new object of *talawiqii* after the original object of *wiqii* has been absorbed by the proposition expressed by *tala*.

(53a)  *wiqii* ( subject$_1$  object=*tala* ( believer$_1$  belief$_2$ ) )    1 = subject, 2 = object

*Talawiqii* may be further prefixed with *mis* 'hear'.

(54)  *mistalawiqica*
ø-**mis**-tala-wiqii-ce
1-**hear**-belief-throw.away-INFL
I am doubting what I hear. (NPD:891)

Again, *mis* is parallel to a complement here. First the subject of the complex verb *mistalawiqii* hears something and then throws away its belief in what it heard. The perceiver argument of *mis*, the believer argument of *tala*, and the metaphorical agent of *wiqii* are identical in this verb.

(54a)  *mis* ( perceiver₁ perceived₂ ) • *wiqii* ( subject₁ object=*tala* ( believer₁ belief₂ ) )
1 = subject

An even somewhat more metaphorical example of this type occurs with the verb *?inipi* 'to take hold of, take, hold, marry, arrest' occurs in more than 40 complex verbs such as with the frequent prefix *teqe*. In addition to *teqe*, *mis* 'hear' can be prefixed.

(55)  *?ew'nipe*           (56)  *?emsteqe?énpse*
?e-?inipi-e                 ?e-**mis**-teqe-?inipi-se
1• 3-take-INFL             1• 3-**hear**-suddenly-take-INFL
I got it. (NPD:1045)       I answer him. (NPD:1049)

The verb *misteqe?inipi* is divalent as indicated by the divalent agreement prefix *?e*.

(56a)  *mis* ( perceiver₁ perceived₃ source₂ ) • *teqe-?inipi* ( subject₁ object₃ )
1 = subject, 2 = object

The semantic structure of *misteqe?inipi* is still relatively straightforward although the meaning of the polysynthetic components of *misteqe?inipi* do not relate to the meaning of the complex verb directly. The best literal translation is 'to suddenly take what one hears from someone else' with the potential perceiver argument of *mis* linked to the subject of *teqe?inipi* and the potential perceived argument of *mis* linked to the object of *teqe?inipi*, thereby taking up the object argument slot of *teqe?inipi*. The potential source argument of *mis* is inherited by *misteqe?inipi* as a new direct object.

## 6     Perception with complement

The present section turns to PCPs with semantic perception complements analoguous to syntactic structures with a perception verb and its clausal complement in syntax as in *he saw me eat my lunch*, or *he heard me as I ate my lunch*, or *he heard that I left*. The general semantic type is present in Nez Percé polysynthesis, but it is much less frequent and less diverse here than in syntax. One set of examples involves the divalent free verb stem *tiwiik* 'to go with,

accompany, follow' which may be related to the semantically similar thematic suffix *etwik* 'after, follow, chase, as OBJ moves away'.

(57) *péetwixne*
pee-tiwiik-ne
3• 3-follow-INFL
He followed him. (NPD:770)

(58) *páatyoxnatwixna*
pee-tiyook-etwik-ne
3• 3-shout-after-INFL
She hollered afer her. (NPD:777)

(59) *péetemesitketwixne*
pee-temee-sitk-etwik-ne
3• 3-throw-wind.around-as.OBJ.moves.away-INFL
He$_1$ lassoed him$_2$ as he$_2$ moved away. (*lit.*: He$_1$ wound a lasso around him$_2$ by throwing it as he$_2$ moved away.) (NPD:652)

If *tiwiik* combines with a motion or locomotion prefix it indicates a direction as below with *hicil* 'climb' (Aoki 1994:139) or *wis* 'travel' (Aoki 994:893).

(60) *pahiciltiwiixna*
pee-hicil-tiwiik-ne
3• 3-climb-follow-INFL
'She climbed after him.' (NPD:770)

(61) *wistiwiikce*
ø-wis-tiwiik-ce
1-travel-follow-INFL
'I am travelling after mine.' (NPD:771)

This verb also occurs with *nim* 'see'. The examples below are divalent as shown by the prefixes *?e* and *pee*.

(62) **nim** *tiwiikce*
ø-**nim**-tiwiik-ce
1-**see**-follow-INFL
I see mine go away. (NPD:770)

(63) *?em tiwiikce*
?e-**nim**-tiwiik-ce
1• 3-**see**-follow-INFL
I see him go away. (NPD:771)

(64) *péem tiwikcene*
pee-**nim**-tiwiik-cene
3• 3-**see**-follow-INFL
They watched as he went. (NPD:771)

The basic meaning of *tiwiik* is a direction after something, but here it is a metaphorical direction without motion. In addition to this basic directional interpretation ('look after') the three examples above can also have a complement interpretation as indicated by the translations. Then *tiwiik* does not only refer to the direction of looking but to the motion of what is perceived, translating just like syntactic complements of perception verbs. The complement reading is a slight direct extension of the direction meaning. If a perceiver looks after a perceived, the perceived usually moves away from the perceiver. Thus looking after someone is semantically close to looking at or seeing someone move away.

There are two more examples which confirm what has been said so far. These involve the prefixes *wis* 'travel' and *teqe* 'run' prefixed to *nimtiwiik*.

(65) *wis**nim**tiwiikce*  (66) *teqe**nim**tiwiikce*  *miyá?c*
ø-wis-**nim**-tiwiik-ce  ø-teqe-**nim**-tiwiik-ce  miya?c-ø
1-travel-**see**-after-INFL  1-run-**see**-after-INFL  child-NOM
I see mine leaving on a trip. (NPD:771)  I see my child run away. (NPD:771)

Here the basic meaning of *tiwiik* is direction of looking again. But it is not the perceiver which travels or runs but the perceived object. That is, the examples do not mean 'see something or look at something while travelling or running'. Rather *wis* and *teqe* are interpreted parallel to perception complements here.

(65a), (66a)  *nim-tiwiik* ( subject₁ object=*wis* ( agent₂ ) )  subject = 1, object = 2

Note that these examples must be underlyingly divalent as suggested by the conceptual semantics of *nim* and by Aoki's translations, although both are antipassivized.

Another example of this type involves the bound verb *tak* 'to do something as one passes'. This may combine with the prefix *tiw'ek* 'follow, chase' or with *nim*. In the latter case, *tak* is interpreted like a perception complement.

(67) *tiw'ähtksa*  (68) *?andas**nim**taksa*
ø-tiw'ek-tak-se  ?e-nees-**nim**-tak-se
1-follow-passing.by-INFL  1• 3-PL$_{OBJ}$-**see**-passing.by-INFL
I go to meet him as he goes by. (NPD:669)  I see them pass by. (NPD:669)

(69) *hindas**nim**taxqana*
hi-nees-**nim**-tak-qene
3• 3-PL$_{OBJ}$-**see**-passing.by-INFL
She used to see them pass by. (NPD:669)

As indicated by the divalent agreement markers *?e* and *nees* both examples are divalent. Their meaning is a direct semantic consequence of the potential perceived argument of *wis* being linked to the moving figure argument of *tak*. This gives a basic meaning 'see someone as he passes by' which is semantically very close to 'see someone passing by'.

(68a), (69a)  *nim* ( subject₁ object=*tak* ( agent₂ ) )  subject = 1, object = 2

## 7  Perception as cause

In this section PCPs expressing a cause of some state or event are discussed. Here the PCP denotes the abstract cause of what the stem expresses, parallel to examples such as *I am angry to see him*, or *he is tired from watching it*, or *he recognized it by the smell* in syntax. Abstract cause is not too frequently expressed in Nez Percé polysynthesis in general. Examples with *?ilaatwi* 'be tired' are below.

(70) *taax?láatwisa*
ø-teex-?ilaatwi-se
1-cold-be.tired-INFL
I am tired fom coldness. (NPD:1013)

(71) *tamqi?láatwisa*
ø-teemqi-?ilaatwi-se
1-throw-be.tired-INFL
I am tired from throwing.
(NPD:1013)

(72) *?ipsqi?láatwisa*
ø-?ipsqi-?ilaatwi-se
1-walk-be.tired-INFL
I am tired fom walking. (NPD:1014)

But examples of PCPs indicating abstract causes are relatively frequent, particularly with mental-state verbs. Below is an example with *?eetXew* 'be sad, desponent, downhearted'.

(73) *?éetXewce*
ø-?eetXew-ce
1-be.sad-INFL
I am sad. (NPD:995)

(74) *?esléew'etXewkse*
?e-**sileew**-?eetXew-k-se
1• 3-**see**-be.sad-EXT-INFL
I am downhearted to see it. (NPD:996)

Note that *?eetXew* is monovalent but that the polysynthetic form is divalent, as indicated by the agreement prefix *?e*. Thus the potential of *sileew* for taking a perceiver and a perceived argument is inherited by the polysynthetic verb.

(74a)  *sileew* ( perceiver₁ perceived₂ ) •  *?eetXew* ( subject₁ )    1 = subject, 2 = object

Similar examples with other verbs are below.

(75) *Xiic'emce*
hi-Xiic'em-ce
3-become.angry-INFL
He becomes angry. (NPD:926)

(76) *?esléewXic'emkse*
?e-**sileew**-Xiic'em-k-se
1• 3-**see**-become.angry-EXT-INFL
I get angry to see it. (NPD:927)

(77) *?éey'sce*
ø-?eey's-ce
1-be.happy-INFL
I am happy. (NPD:1003)

(78) *siléew'ey'ckse*
ø-**sileew**-?eey's-k-se
1-**see**-be.happy-EXT-INFL
I am happy to see it. (NPD:1004)

(79) *lamámtca*
ø-lamamt-ce
1-be.uncomfortable-INFL
I am uncomfortable.
(NPD:306)

(80) *mislamámtksa*
ø-**mis**-lamamt-k-se
1-**hear**-be.uncomfortable-EXT-INFL
I am feeling annoyed from hearing something. (NPD:306)

All mental-state verbs with PCPs indicating abstract causes illustrated so far were monovalent. The discussion now turns to mental-state verbs such as *tillaap* 'be lonesome, miss', which are at least potentially divalent.

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(81) *tilláapca*
 ø-tillaap-ce
 1-be.lonesome-INFL
 I am lonesome. (NPD:739)

(82) *?atilláapca*
 ?e-tillaap-ce
 1• 3-miss-INFL
 I miss her. (NPD:739)

(83) *walatilláapsa*
 ø-wele-tillaap-se
 1-in.captivity-be.sad-INFL
 I am getting sick of being a captive. (NPD:740)

(84) *?asláwtillapsa*
 ?e-**sileew**-tillaap-s e
 1• 3-**see**-be.sad-INFL
 I am sad to see it. (NPD:739)

The verb *sileewtillaap* is clearly divalent since it has the divalent agreement prefix *?e*. Another example where divalency is more directly evident involves *cuukwe* 'to know, have knowledge, understand'. This verb is attested with *sileew* and *mis*. Then, knowledge is a consequence of temporally preceding hearing or seeing.

(85) *?amscúukwece*
 ?e-**mis**-cuukwe-ce
 1• 3-**hear**-know-INFL
 I understand it by hearing,
 I understand it. (NPD:53)

(86) *siléewcukwece*
 ø-**sileew**-cuukwe-ce
 1-**see**-know-INFL
 I know by seeing. (NPD:53)

As indicated by divalent agreement marker *?e* the valency of *cuukwe* is not affected. *Siléewcukwece* is an antipassivized variant of the same structure.

(85a), (86a) *sileew* ( perceiver$_1$ perceived$_2$ ) • *cuukwe* ( subject$_1$ object$_2$ )
     1 = subject, 2 = object

The complex verb *sileewcuukwe* can be causativized by *sepee* as below. The plural object number agreement marker *nees* shows that *hinéesepeslewcukwene* is divalent.

(87) *hinéesepeslewcukwene*
 hi-nees-sepee-**sileew**-cuukwe-ne
 3• 3-PL$_{OBJ}$-CAUS.COLL-**see**-know-INFL
 He made them know by seeing. (NPD:53)

*Sileew* again indicates an abstract cause of knowledge here, but the process of acquiring knowledge as a consequence of visual perception is induced by an external causer.

(87a) *sepee* ( causer$_1$ causee$_2$ ) •
   *sileew* ( perceiver$_2$ perceived$_3$ ) •
   *cuukwe* ( subject$_2$ object$_3$ )    1 = subject, 2 = object

Linking of *sileewcuukwe* remains unchanged and the perceiver must be understood identical to the knower. Both perceiver and knower are in turn linked to the causee argument of *sepee*.

A closely similar pattern occurs with *suki* 'to find, to know, to recognize'. Like *cuukwe*, *suki* occurs with *sileew* 'see' and *mis* 'hear'.

(88)  *hinéessukise*
hi-nees-suki-se
3• 1-PL<sub>OBJ</sub>-recognize-INFL
He recognized us. (NPD:660)

(89)  *?enesmissukise*          (90)  *?esléewsuks*
?e-nees-**mis**-suki-se              ?e-**sileew**-suki-s
1• 3-PL<sub>OBJ</sub>-**hear**-recognize-INFL       1• 3-**see**-recognize-INFL
l recognize hem by sound. (NPD:661)      I saw and knew him. (NPD:661)

These examples are divalent as indicated by the divalent agreement prefix *?e*. But the range of PCPs attested with *suki* is much greater. The prefixes *nuuxc* and *himke* also occur with *suki*.

(91)  *?enúuxsukse*            (92)  *himkesuki*
?e-**nuuxs**-suki-se             **himke**-suki-t
1• 3-**smell**-recognize-INFL         **taste**-recognize-ACTION.NLZR
I know it by smell. (NPD:661)       recognition by taste (NPD:660)

(91) is divalent. But (92) is a nominalization marked by the action nominalizer *t*. The valency of *himkesuki* cannot be easily determined since this verb does not occur without the nominalizer, but it is plausible to assume that it is underlyingly divalent in analogy with the other examples.

A somewhat more problematic case is *ciceqe* 'be fascinated by, enjoy, marvel at'. The direct object is semantically an abstract cause of the mental state of being fascinated. The verb *ciceqe* occurs as a divalent verb with the divalent agreement prefix *?e*.

(93)  *?eccéqece*
?e-ciceqe-œ
1• 3-be.fascinated.by-INFL
I am fascinated by it. (NPD:20)

Below, *ciceqe* is prefixed with *sileew* to indicate the abstract cause of being fascinated.

(94)  *hipesléwcicqenu?*
hi-pee-**sileew**-ciceqe-u?
3-PL<sub>SU</sub>-**watch**-be.fascinated-INFL
They will enjoy watching it. (NPD:21)

This example is clearly monovalent since it contains the person agreement prefix *hi* for third person subject. The semantic structure is somewhat more difficult. Since the direct object of *ciceqe* is semantically an abstract cause, the original direct object argument of *ciceqe* seems simply to have been absorbed by *sileew* which has percolated its potential perceived argument as a new object. The state of being fascinated is caused by seeing something.

(94b)　*sileew₃* ( perceiver₁ perceived₂ ) •　*ciceqe* ( subject₁ object₃ )　1 = subj, 2 = obj

This analysis is grossly parallel to the semantic structures that have been assigned to monovalent mental-state verbs with PCPs indicating abstract causes in the discussion above. So although *ciceqe* is a divalent mental state verb it is different from *cuukwe* and *suki* since in *ciceqe* the direct object is an abstract cause of the mental state whereas in *cuukwe* and *suki* the direct object is a fact or entity known or recognized. [5]

There are some more examples which pattern like *ciceqe*. One of them involves *cimik* 'to hate, dislike, refuse, reject, oppose'. The cause of the mental state may be expressed by a proposition encoded as a suffix such as *uukini* 'as OBJECT approaches SUBJECT' below. Here the original direct object is absorbed by the proposition expressed by *uukini*, but the potential approacher argument of *uukini* is inherited by the complex verb *cimixnuukini* as a new direct object. The second example is semantically parallel with the sole difference that the abstract cause is expressed by the PCP *sileew* here.

(95)　*?eciimxnuukinise*
　　　?e-cimik-uukini-se
　　　1• 3-dislike-approach-INFL
　　　I am not happy to see him come. (*lit*: I dislike the fact that he approaches
　　　　　　　　　　　　　　　　　　　　　　　　　　　　　me.) (NPD:37)

(96)　*?esileewcimkse*
　　　?e-sileew-cimik-se
　　　1• 3-see-dislike-INFL
　　　I am angry to see it. (NPD:37)

Both (95) and (96) are divalent as evident from the presence of the divalent agreement marker *?e*.
　　　　　Another semantically almost identical example is based on the verb *p'aal'a* 'to dislike, hate, find repulsive, reject' and the prefix *himke* 'taste, with mouth'.

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[5] It is important to remember that semantic subtleties of this kind are relevant to linguistic analysis only (which needs to be explicit about semantics) but do not have any relevance to the Nez Percé speaker who has polysynthetic formations listed in his mental lexicon and adds new formations by analogy. Semantic plausibility and world knowledge dictates the right interpretations, but no semantic structures are needed by the speaker himself.

(97) *?ap'áal'aca*
?e-p'aal'a-œ
1• 3-dislike-INFL
I dislike it. (NPD:563)

(98) **himkap'ál'aca**
ø-**himke**-p'aal'a-ce
1-**taste**-dislike-INFL
I dislike the taste of it. (NPD:563)

*Himkap'ál'aca* refers to 'generalized' perception. To dislike the taste of something one must have tasted it at least once. So, again, there is an event of tasting something which temporally precedes and causes a mental state. Both the tasing event as well as the mental are generalized and understood as a kind of 'gnomic' situation where the subject has once tasted something and from then on dislikes its taste. Other similar examples have *sayaqi* 'to like, admire, be satisfied with, be fond of' and *yoqoop* 'to enjoy, relish'.

(99) **himkasayqsa**
ø-**himke**-sayaqi-s e
1-**taste**-like-INFL
I like the taste. It tastes good.
(NPD:629)

(100) **himkayqopt**
**himkee**-yoqoop -t
**taste**-enjoy-NLZR
enjoying the taste of something
(NPD:955)

Not only mental state verbs can be prefixed with perception thematic prefixes interpreted as abstract causes. Some examples involving verbs of other semantic types are also attested, such as *?eewii* 'be sleepy, drowsy', *k'oomay* 'be ill, ache, be contrite', and *?iyaaq* 'to find, discover'.

(101) **silew'ewłikse**
ø-**sileew**-?eewii-k-se
1-**watch**-be.sleepy-EXT-INFL
Iam sleepy from waching it.
(NPD:1000)

(102) *hinłxck'omayn*
hi-**nuuxc**-k'oomay-n
3-**smell**-be.ill-INFL
He just became sick from the smell.
(NPD:285)

(103) **?amc'iyáaqin**
?e-**mis**-?iyaaq-in
1• 3-**hear**-find-INFL
Ijust found it by hearing. (NPD:1092)

(104) **nóoxc'yaqin**
ø-**nuuxc**-?iyaaq-in
1-**smell**-find-INFL
I just found it by the smell. (NPD:1092)

## 8 Perception as result

The present section turns to PCPs expressing the result of what is denoted by the stem the PCP is prefixed to, parallel to examples from syntax such as *I saw it because he showed it to me* or *I just heared him because he talked so loudly*. In most examples discussed so far the ordering of morphemes within the polysynthetic complex iconically reflected the actual temporal sequence of the events denoted by these morphemes. This iconic relation between linear order of morphemes and temporal sequence is not peculiar to PCPs but holds for the majority of Nez Percé polysynthetic complexes (Zellmayer 2002*a*). In all complex

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verbs involving causative situations, for instance, the causing event precedes the result.

(105)  *sapóotaasksa*
    ø-sepuu-taasi-k-se
    1• 3-blow-die.out-EXT-INFL
    Iblow it (e.g. a candle) out. (NPD:691)

(106)  *paata?yíyaksa*
    pee-tee-?iyiya-k-s e
    3• 3-speak-be.concerned-EXT-INFL
    She told him to be careful. (NPD:1096)

The polysynthetic morphemes in the overwhelming majority of abstract cause relations and intention relations are also ordered iconically. Exceptions to this generalization are usually sporadic and unsystematic.[6] Two of the few exceptions to iconic ordering involve PCPs attached to the bound verb *lehp* 'to bewitch'. In *weeplehp* the original meaning of *weep* 'with hand' seems to have been lost, allowing the addition of further prefixes *silim* 'see' or *mis* 'hear'. For the sake of clarity the prefix *weep* is nevertheless glossed below.

(107)  **_mis_**_wéeplehpse_    ( *misueplépse* in Morvillo 1895:17)
    ø-**mis**-weep-lehp -se
    1-**hear**-with.hand-bewitch-INFL
    I hear by bewitchment. (*lit.*: I hear something as a consequence of being bewitched.) (NPD:329)

(108)  **_silim_**_wéeplehpse_
    ø-**silim**-weep -lehp-s e
    1-**see**-with.hand-bewitch-INFL
    I see a ghost. I receive a supernatural warning. I hallucinate. (*lit*: I see something as a consequence of being bewitched.) (NPD:329)

As evident from the translations perception is a result of bewitchment in these examples, that is, bewitchment takes on the function of a somewhat indirect abstract cause here. As such, morpheme ordering is antiiconic here since the morpheme encoding the result (*mis* or *silim*) precedes the morphemes encoding the cause (*weeplehp*) rather than the reverse as would be expected by iconicity. Both examples are inflected as monovalent verbs. Since no further examples are at hand, it must be assumed that these are not antipassives of divalent verbs, but underyingly monovalent.

(107a), (108a)    *silim* ( perceiver₁ perceived )  •    *weeplehp* ( subject bewitched₁ )
                     1 = subject

The translations as well as world knowledge indicate that bewitchment is done by someone else but not by the one bewitched. Therefore an implicit agent must

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[6] The only regular and systematic exception to iconic ordering are those formations with the thematic suffix *tee* 'go away in order to' since this, being a suffix, always follows the morpheme or string of morphemes which it temporally pre-cedes of which is intended by the subject.

be assumed in the semantic structure of *weeplehp* and the bewitched argument of *weeplehp* must be linked to the perceiver of *mis* or *silim* as above. The potential perceived argument of *mis* or *silim* remains implicit, and only the perceiver of *mis* or *silim* which is linked to the patient of *weeplehp* is represented in the argument structure as a subject.

## 9    Perception for purpose

This section discusses some few examples of PCPs where perception is done for a purpose parallel to syntactic examples such as *I am looking out to find it* or *I watch him to make him nervous.* Purpose is relatively frequently encoded in Nez Perce polysynthesis, but most often it is linearized antiiconically and expressed by the suffix *tee* 'move in order to'. There is one example where a PCP attaches to a stem and indicates that willful and controlled perception is done for the purpose of what the stem expresses. This is based on *ʔipeewʔi* 'to look for, to hunt, to discover' with *silim* 'look'.

(109)    **silim** *'ipéewʔise*
    ø-**silim**-ʔipeewʔi-se
    1-**look**-discover-INFL
    I am looking to locate mine.
    (NPD:1060)

(110)    *ʔesilim'ipeecwʔise*
    ʔe-**silim**-ʔipeewʔi-se
    1· 3-**look**-discover-INFL
    I am searching with my eyes.
    (NPD:1060)

The complex form *silim'ipeewʔi* is divalent as indicated by the presence of the divalent agreement prefix *ʔe.* In the semantic analysis the potential perceiver argument of *silim* remains implicit and is not linked to the object of *ʔipeewʔi* since in looking in order to find something the entity searched for is not already in sight.

(109a), (110b)    *silim* ( perceiver₁  perceived )   •    *ʔipeewʔi* ( subject₁  object₂ )
          1 = subject, 2 = object

From a semantic point of view, and fom the perspective of world knowledge it is not surprising that verbs with a perception intentionally done for a purpose are very rare.

## 10    Perception as purpose

There are some antiiconically ordered complexes of a PCP and a stem which receive a purposive interpretation with the prefix expressing a purpose, just like in such syntactic constructions as *I come closer to see it* or *I put it there for him to see.* One such example has the verb *hiisemtuk* 'to mark, make a marker' which may combine with *silim* 'see, eye' as below. Here the PCP specifies the purpose of the action of making a marker, namely that this is done for someone else's eyes or for someone else to see.

(111)　***siĺiisemtukse***
　　　ø-**sil**-hiisemtuk-se
　　　1-**see**-make.a.marker-INFL
　　　I am making a marker for someone to see. (NP:162)

There are no morphological indications for *silhiisemtuk* to be analysed as divalent. If this example was divalent, the agreement marker *ø* would indicate first person subject and second person object or second person subject and first person object. But it is not translated as 'I am or you are making a marker for you or me to see'.

(111a)　*sil* ( perceiver perceived₂ ) •　*hiisemtuk* ( subject₁ patient₂ )　1 = subj

Note that from the translation it is evident that the agent of *hiisemtuk* and the potential perceiver of *silim* are not the same. Whereas the subject agent of *hiisemtuk* becomes the subject of the complex *silhiisemtuk* the perceiver of *sil* remains implicit. The potential perceived argument of *sil* is linked to the implicit patient of *hiisemtuk*, that is, to the marker made by the subject agent.

There are two more examples of antiiconically ordered purposive constructions with PCPs, both based on monovalent *talaqi* 'to stop'. This verb is usually causativized by thematic prefixes such as *cuu* 'with pointed object, with pole' or indicates that the action expressed by a thematic prefix such as *siwi* 'swim' is stopped or terminates.[7]

(112)　*talqíca*　　　　　　　(113)　*siwítalqsa*
　　　ø-talaqi-ce　　　　　　　　　　ø-siwi-talaqi-se
　　　1-stop-INFL　　　　　　　　　　1-swim-stop-INFL
　　　I stop. (NPD:673)　　　　　　　I stop swimming. (NPD:675)

(114)　*cóotalqsa*
　　　ø-cuu-talaqi-se
　　　1-with.pointed.object-stop-INFL
　　　I push to a stop, prevent movement with a pole. (NPD:674)

In two examples *talaqi* is prefixed with *mis* 'hear', then indicating an action of stopping for the purpose of hearing.

(115)　***mistálqsa***
　　　ø-**mis**-talaqi-se
　　　1-**hear**-stop-INFL
　　　I am waiting to hear. I listen. I am paying attention. (NPD:674)

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[7] In this and a few similar examples, the stem *talaqi* could also be analysed as a terminative aktionsart marker. It would not be unusual in Nez Percé polysynthesis to have a stem indicating aspect or aktionsart of an action or event expressed by a thematic prefix.

(116)   *hitqamstálqa*
        hi-teqe-**mis**-talaqi-e
        3-briefly-**hear**-stop-INFL
        He stopped for a while to listen. (NPD:675)

Both examples are inflected as monovalent verbs. The translations indicate that the relation between *talaqi* and *mis* is one of purpose.

(115a), (116a)   *mis* ( perceiver₁ perceived ) •   *talaqi* ( subject₁ )   1 = subject

For the semantic analysis this means that the potential perceived argument of *mis* remains implicit. The subject of *talaqi* is linked to the potential perceiver of *mis*.

## 11      Temporally simultaneous perception

There are a few examples involving PCPs where there is no causal or purposive connection between perception and what the verb stem denotes, and where there is not even temporal precedence between the perception and the denotate of the stem or the reverse. In these examples one has temporal overlap or temporal simultaneity. They are based on *peeleey* 'be lost, get lost, be confised, loose one's way' (Aoki 1994:524). In very much the same way as one can easily lose one's way in travelling for example, this can also happen in perceiving something, as indicated by the prefixes *silim* 'see' and *mis* 'hear' below. There is no necessary causal connection between perception and getting confised but, getting confused happens at one specific point within perception.

(117)   *siłimpeleykse*
        ∅-**silim**-peeleey-k-se
        1-**see**-get.lost-EXT-INFL
        I am confused in sight. (NPD:525)

This example is morphologically monovalent. The translation suggests that it is not an antipassive of an underlyingly divalent verb, but an underived monovalent verb. Therefore the potential perceived argument of *silim* must be assumed to remain implicit.

(117a)   *silim* ( perceiver₁ perceived ) &   *peeley* ( subject₁ )      1 = subject

The example below is similar to that above but involves *mis* 'hear' instead of *silim* 'see'. It is clearly shown to be divalent by the presence of the divalent agreement prefix *ʔe*.

(118)   *ʔemspéeleykse*
        ʔe-**mis**-peeleey-k-se
        1• 3-**hear**-get.lost-EXT-INFL
        I do not understand him. (NPD:525)

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The semantic structure of of this example is as below with the potential per-ceiver of *mis* and the subject of *peeleey* linked and made the subject of the complex verb *mispeeleey* and with the potential perceived argument of *mis* added to the argument structure of *mispeeleey* as a new direct object.

(118a)   *mis* (perceiver$_1$ perceived$_2$) & *peeleey* (subject$_1$)   1 = subj, 2 = obj

## 12   Ability for perception

The only example in the corpus illustrating ability of perception or pos-sibility of perception – parallel to syntactic structures as in *I can see* – involves the rare PCP *se* 'see, look' and the verb *?iyooXo?* 'to wait'. Combined with the prefix *teqe* 'suddenly' and *se* it means 'to be able to see suddenly'. But if *teqe-se?iyooXo?* is inflected for third person subject it may metaporically mean 'to be lightning'. This is only a slight semantical extension, as when it is dark from rain or storm and suddenly lightning enables one to see.

(119)   *taqasa?yóoXo?sa*
    ø-teqe-s e-?iyooXo?-se
    1-suddenly-**see**-wait-INFL
    Suddenly I can see. (*lit:* I am waiting and then suddenly I see.) (NPD:1097)

(120)   *hitqasa?yóoXo?sa*
    hi-teqe-**se**-?iyooXo?-se
    3-suddenly-**see**-wait-INFL
    Suddenly he saw. There is lightning. (*lit:* He is waiting and then suddenly he saw (because of lightning).) (NPD:1097)

The two examples must be assumed to be monovalent. No other examples of this peculiar type are attested in the corpus, and *teqese?iyooXo?* itself has been included here just for completeness.

## 13   Appearance and perception quality

Another interesting but restricted use of PCPs is to mark appearance as in syntactic structures such as *he looks tired*, or *it sounds like thunder*, or *it tastes like fish*. The visual PCP *sileew* 'see, look' can be prefixed to a few adjec-tives or stative verbs adding a meaning component of appearance or 'looking like'. One such example involves the stem *qepsi* 'bad, immoral, foul, etc.' which only occurs with the adjective formant *?is*. If prefixed with *sileew* 'look' the adjective *qepsi?s* 'bad' is still an adjective, that is, does not turn into a verb, but means 'looks bad' or 'appears bad'.

(121)   *siléwqepsi?s*
    **sileew**-qepsi-?s
    **look**-bad-ADJVZR
    looks bad (but is not really bad) (NPD:579)

This meaning can be easily fit into the general semantic pattern of PCPs if such examples are analysed as having a basic meaning along the lines of 'be (judged) bad after looking' or the like which brings out the discrepancy between what the stem *qepsi?s* denotes and the 'real' quality of the argument quite naturally. Not only adjectives are attested in the appearance construction with *sileew* but also the verb *kiceey* 'to be shy, ashamed'.

(122)  *kicéeyce*
       ø-kiceey-ce
       I-be.shy-INFL
       I am shy. I am ashamed.
       (NPD:222)

(123)  ***sileewkiceyʹew***
       **sileew**-kiceey-?ew
       **look**-be.shy-ADJVZR
       shy in appearance but really not
       (NPD:222)

The complex verb *sileewkicey* occurs only with the adjectivizer *?ew*, again.

There is one polysynthetic form which is semantically similar to the appearance construction with *sileew* but has *tiiwe* 'to smell, stink' and the PCP *himke* 'taste'.

(124)  *tiiwece*
       ø-tiiwe-ce
       I-smell-INFL
       I smell. I stink. (NPD:767)

(125)  ***himketiiwece***
       hi-**himke**-tiiwe-ce
       3-**taste**-stink-INFL
       It has a dusgusting taste (as when one bites into something and the taste is bad.) (Aoki 1994:768)

There are two major differences between (125) on the one hand and (121) and (123) above. First, as evident from (121) and (123) the appearance construction with *sileew* occurs only in adjectivized forms but not as verbs. Second, with *sileew* the quality expressed by the stem is only apparently present but not in reality. That is the subject of the adjective is judged to have this quality after being looked at. In (125) on the other hand, the stinky or bad taste is actually present afer tasting the subject of the verb.

But this semantic difference is not too important for the following reason: In seeing something or looking at something it is possible to come to a wrong judgement, and it is equally likely for something to look different from what it actually is if investigated in more detail or looked at more closely. But this is not possible with tasting. Either something tastes bad or not, but there is hardly any substance that only appears to taste bad but at closer tasting turns out delicious. Thus, this difference is actually a consequence of the physics of tasting rather than of the semantics of *sileew* or *himke*. Therefore the examples can be treated as tokens of the same basic construction type.

## 14     Sense organ (body part) patient

There is no productive noun incorporation, and noun-plus-verb compounds are not too frequent. Thematic prefixes receive a patient interpretation

only in a minority of cases. Thematic prefixes expressing body part patients are even rarer and only a handful of examples have been found in the corpus. Examples of PCPs body part patients are very few. The only clear example is based on *silim* 'see, look, eye'.

(126)   **_silím_ 'latwisa**
        ø-**silim**-ʔilaatwi-se
        1-**eyes**-be.tired-INFL
        My eyes get tired. (NPD:1013)

There are two more examples of sense organ body part patients expressed by thematic prefixes. They contain *we* and *wew'* which possibly mean 'eyes (?)'. But neither is a PCP, and neither is attested with a meaning 'see' or 'look'.

(127)   *wak'álksa*            (128)   *qiséeqce*              (129)   *wéw'qiseqse*
        ø-we-k'alaki-se                ø-qiseeq-ce                     ø-wew'-qiseeq-se
        1-eyes-block-INFL             1-open.mouth-INFL               1-eyes-open.mouth-INFL
        I close my eyes.              I open my mouth.                I open my eyes.
        (NPD:263)                    (NPD:587)                       (NPD:587)

## 15   Summary of results

The present section summarizes what has been found so far. Although the corpus is small, the statistic results presented below are quite stable, even if minor modifications of the analysis of certain examples are adopted. The present short essay does not cover all aspects of PCPs in Nez Percé of course, and more work is necessary on this topic. Figure 2 summarizes the frequency of individual PCPs and of perception types. The patterns are fully in line with the biological structure of the human perceptual system, of course.

| *site(e)* | 'look, face' | 18 | 24.3 % | | | |
| *sile(e)w* | 'see, look, watch' | 14 | 18.9 % | | | |
| *sil(im)* | 'see, look, watch, eyes' | 8 | 10.8 % | Visual | 46 | 62.2 % |
| *nim(ee)* | 'see, look, watch' | 4 | 5.4 % | | | |
| *se* | 'see, look, watch' | 2 | 2.7 % | | | |
| *mis* | 'hear' | 19 | 25.7 % | Auditory | 19 | 25.7 % |
| *himke(e)* | 'taste' | 6 | 8.1 % | Taste | 6 | 8.1 % |
| *nuuxc* | 'smell' | 3 | 4.1 % | Olfactory | 3 | 4.1 % |
| Total | | | 74 | Total | | 74 |

Figure 2: Frequency of perception prefixes and perception types

In the preceding discussion polysynthetic verbs with PCPs have been classified according to the type of relation the PCP enters with the stem and other affixes.

The frequencies of these relations are summarized in figure 3. Two types are most frequent. In almost 25% of the cases the PCP acts as the semantic head of the word, and the stem or suffix specifies the direction of perception. In almost 34% of the cases the perception causes some other event or state, usually a mental state. All other types are far less fequent, all making up less than 10% of the data. Particularly interesting but by no means surprising is the low frequency of PCPs entering relations parallel to complementation.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Direction of perception | 18 | 24.3 % | Modification | | | 24 | 32.4 % |
| Manner of perception | 6 | 8.1 % | | | | | |
| Perception with complement | 4 | 5.4 % | Complementation relation | 4 | 44.4 % | 9 | 12.2 % |
| Perception as complement | 5 | 6.8 % | | 5 | 55.6 % | | |
| Perception as cause | 25 | 33.8 % | Cause relation | 25 | 92.6 % | 27 | 36.5 % |
| Perception as result | 2 | 2.7 % | | 2 | 7.4 % | | |
| Perception for purpose | 1 | 1.4 % | Purposive relation | 1 | 14.3 % | 7 | 9.5 % |
| Perception as purpose | 6 | 8.1 % | | 6 | 85.7 % | | |
| Simultaneous perception | 2 | 2.7 % | | | | | |
| Ability for perception | 1 | 1.4 % | | | | | |
| Appearancy and quality | 3 | 4.1 % | | | | | |
| Sense organ patient | 1 | 1.4 % | | | | | |
| Total | | 74 | | | | | |

Figure 3: Semantic relations entered by perception prefixes

PCPs can be hardly ever interpreted to designate the body part they are semantically related to. In general, patients are rarely expressed by thematic prefixes in Nez Percé polysynthesis and less than 10% in a corpus of approximately 3000 polysynthetic verbs are of this type. But among PCPs this is even rarer. In only 1.4% of cases a sense organ patient is expressed by a PCP. Nez Percé is thus very different from languages with productive noun incorporation or lexical affixes where body parts including sense organs are among the most frequent semantic concepts expressed in polysynthesis.

Figure 3 also plots the frequency of generalized relation types between perceptual prefixes and other morphemes in polysynthesis. In almost 37% of cases the PCP enters a cause-effect or cause-result relation. In over 92% of the examples of this type the perceptual prefix expresses the cause whereas in only slightly over 7% the PCP expresses the result which is caused by what the stem encodes. This is in line with the fact that PCPs are prefxes: In a cause-result relation between a prefix and a stem or suffix in Nez Percé, in the overwhelming majority of cases the prefix expresses the cause whereas the stem or suffix expresses the result. As expected from the semantics of perception, if a PCP is a cause it is always an abstract cause but never an intentional or agentive cause.

Whereas there are many such examples as 'to get angry from seeing something' there is no example such as 'to make someone angry by looking at him'.

(130)  *?esléewXic'emkse*
       ?e-sileew-Xiic'em-k-se
       I• 3-see/look-become.angry-EXT-INFL                    (NPD:927)
       I get angry to see it. **and not** I make him₁ make him₁ angry by looking at him₁.

Only two examples of a cause-effect or cause-result relation with a PCP may (but need not) be interpeted as involving intentional causation in some occurances.

(131)  *silimwéeplehpse*
       ø-silim-weep-lehp-se
       1-see-with.hand-bewitch-INFL
       I see a ghost. I receive a supernatural warning. I hallucinate. (*lit*: I see something as a consequence of being bewitched.) (NPD:329)

Interestingly, in these two examples, the PCP encodes the result rather than the cause. In slightly more than 12% of cases the PCP enters a relation of semantic complementation. In more than 44% of these cases the PCP takes a complement such as 'to see someone running' whereas in 55.6% of cases the PCP expresses the complement of some other semantic concept such as 'to imitate what one hears from someone'. It is quite surprising that complementation relations of this type are expressed at all in polysynthesis. In only 9.5% of cases the perceptual prefix enters a purposive relation. In the majority of almost 86% of these cases the perception is the purpose for which some other action is done whereas in only 14.3% perception is intentionally done for some purpose. From a semantic point of view this is not surprising again, since there are not many possible purposes for which perception can be done. But again it is unexpected that purposive relations with perception concepts are expressed at all in a polysynthetic language like Nez Percé.

It has already been shown that in the overwhelming majority of polysynthetic verbs in Nez Percé morphemes are ordered iconically, that is, that morpheme order reflects the actual temporal sequence of what the morphemes in question express (Zellmayer 2002*a*). This is a particularly stable generalization, since the individual frequencies of iconic, antiiconic, and undeterminable orderings are approximately equal in different subtypes of polysynthetic verbs. In verbs with PCPs, there is no temporal ordering between what morphemes express in slightly more than almost 43% of cases. Of the remaining cases, more than 80% are ordered iconically, as evident from figure 4.

| Iconic | 34 | 45.9 % | Iconic | 34 | 81.0 % |
|---|---|---|---|---|---|
| Antiiconic | 8 | 10.8 % | Antiiconic | 8 | 19.0 % |
| Not applicable | 32 | 43.2 % | Total | | 42 |
| Total | | 74 | | | |

Figure 4: Iconicity of ordering

A final important parameter of investigation is linking patterns. These can be divided into two broad types, namely same-subject linking and different-subject linking, taking into consideration the obvious parallelism with linking in syntax. Example (132) illustrates same-subject linking with the perceiver and the knower identical. Example (133) illustrates different-subject linking with the perceiver and the agent different.

(132) *sįléewcukwece*
ø-**sileew**-cuukwe-ce
1-**see**-know-INFL
I know by seeing. (NPD:53)

(133) *sįłiisemtukse*
ø-**sil**-hiisemtuk-se
1-**see**-make.a.marker-INFL
I am making a marker for someone to see. (NPD:162)

Just like iconicity of morpheme ordering, same vs. different subject linking is not always applicable (in 27% of the cases). But in the majority of cases where this parameter can be applied, namely in almost 78%, the linking is same-subject, as evident from figure 5. This pattern from PCPs is identical to what is found in Nez Percé polysynthesis in general.

| Same subject | 42 | 56.8 % | Same subject | 42 | 77.8 % |
|---|---|---|---|---|---|
| Different subject | 12 | 16,2 % | Different subject | 12 | 22,2 % |
| Not applicable | 20 | 27,0 % | Total | | 54 |
| Total | | 74 | | | |

Figure 5: Linking patterns with perception prefixes

Figure 6 summarizes the functions of individual visual PCPs. But just *site(e)* which occurs only in directed perception, and *nin(ee)* which occurs only entering a relation with the stem or another prefix which is similar to a perception complement relation in syntax, are clear cut cases. Nothing can be said with respect to *se* since this prefix is very rare. The distribution of *site(e)* is not surprising in view of the fact that it possibly relates to the noun *mastay* 'face, cheek'. All occurences of the PCP *site(e)* in the corpus involve stems or suffixes which express motion, location, or direction. Therefore the perception meaning of *site(e)* is probably a secondary meaning deriving from a primary meaning along the lines of 'for the SUBJECT's face to be located or directed' which has later been extended to 'for the SUBJECT to look in a certain direction'. *Sile(e)w* and *sil(im)* are more difficult and must await further research.

| | sile(e)w | site(e) | sil(im) | nim(ee) | se |
|---|---|---|---|---|---|
| Direction of perception | – | 18  100.0 % | – | – | – |
| Manner of perception | 1  7.1 % | – | 3  37.5 % | – | – |
| Perception with complement | – | – | – | 4  100.0 % | – |
| Perception as complement | – | – | – | – | – |
| Perception as cause | 11  78.6 % | – | – | – | – |
| Perception as result | – | – | 1  12.5 % | – | – |
| Perception for purpose | – | – | 1  12.5 % | – | – |
| Perception as purpose | – | – | 1  12.5 % | – | 1  50.0 % |
| Simulteneous perception | – | – | 1  12.5 % | – | – |
| Ability for perception | – | – | – | – | 1  50.0 % |
| Appearance and quality | 2  14.3 % | – | – | – | – |
| Sense organ patient | – | – | 1  12.5 % | – | – |
| Total | 14 | 18 | 8 | 4 | 2 |

Figure 6: Visual perception prefixes

It has been shown that most semantic relations with a perception concept which regularly occur in syntax above the word level are also found in polysynthesis in this language. This has been demonstrated be describing polysynthetic verbs with PCPs in a way which focusses on parallelism between polysynthesis and syntax as outlined in Zellmayer (2002$b$). But, of course, this approach does not imply that the structures found in polysynthesis and in syntax are actually the same. In fact, as evident from the numbers in figure 3 polysynthesis is much less productive than syntax in the area of perception, and various semantic relations involving perception which are highly productive in syntax – such as perception verbs taking complements – are represented by only a handful of examples in polysynthesis. But what is most relevant to the study and understanding of polysynthesis is that they are attested at all.

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